NORTHERN INDIAN MUSIC

BY THE SAME AUTHOR

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NORTHERN INDIAN MUSIC, VOL. TWO. *The Main Rāgăs.*
An Analysis and Notation.

INTRODUCTION TO THE STUDY OF MUSICAL SCALES.
YOGA: *The Method of Re-integration.*

In Preparation

THE METAPHYSICAL THEORY OF SOUND AND ITS APPLICATION TO LANGUAGE AND MUSIC

NORTHERN INDIAN MUSIC

Volume One

THEORY & TECHNIQUE

ALAIN DANIÉLOU
(*Śhiva Śharan*)

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श्रीः

प्रणम्य शिरसा देवौ सरस्वतिविनायकौ ।
विचिन्त्य मनसा विष्णुं कर्त्तव्यं कर्त्तुमारभे ॥

"I bow my head to Sarasvatī, Goddess of Learning, who is the flow of Speech, and to Gaṇeśhă, the Guide, Lord of Number. Meditating upon the All-pervading, Viṣhnu, I begin my work."

FOREWORD

IN attempting to solve the problems that arise in interpreting Sanskrit works on music, I have been led to follow the traditional Hindu version of ancient Indian history, for this alone makes possible a satisfactory classification of the numerous Sanskrit treatises; also it explains particularities which cannot be accounted for if we follow the usual modern theory and dates. Some of the views presented here may, therefore, appear to contradict what is generally held nowadays as historical fact. But it should be remembered that these views are not simply my own. While dealing with the traditional Hindu musical system, we shall also consider its history as it is traditionally understood.

The small numerals after quotations refer to the Sanskrit sources given in Appendix Two.

A. D.

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PART I

THEORY

अथनादस्य चोत्पत्तिंवक्ष्ये शास्त्रविवेकतः।
धर्म्मार्थकाममोक्षाणामिदमेवैकसाधनम् ॥

"Extracting the essence of the Scriptures, I shall tell the origin of Intelligible Sound which is the only means of achieving the four aims of human life—righteousness, prosperity, pleasure and liberation." (Saṅg. Darp. 1–29.)

वीणावादनतत्त्वज्ञः श्रुतिजातिविशारदः।
तालज्ञश्चाप्रयासेन मोक्षमार्गं नियच्छति ॥ (1. प्रय)

"He who knows the inner meaning of the sound of the lute, who is expert in intervals and in modal scales and knows the rhythms, travels without effort upon the way of liberation." (Yājñavalkyă Smṛiti III, 115.)

CHAPTER I

THE THEORY

पशुः शिशुर्मृगो वापि नादेन परितुष्यति ।
अतो नादस्य माहात्म्यं व्याख्यातुं केन शक्यते ॥

"Animals tamed or wild, even children, are charmed by sound. Who can describe its marvels?" (*Sang. Darp.* 1–31.)

Origins

UNDER the name of *Gāndharvă Vedă*,* a general theory of sound with its metaphysics and physics appears to have been known to the ancient Hindus. From such summaries as have survived till modern times, it seems that the Gāndharvă Vedă studied every possible way of using the properties of sound, not only in different musical forms and systems but also in physics, medicine and magic. The rise of Buddhism with its hostility towards tradition brought about a sharp deviation in the ancient approach to the arts and sciences, and their theory had often to go underground in order to avoid destruction. It was at this time that the Gāndharvă Vedă, with all the other sacred sciences, disappeared; though the full tradition is said to survive among the mysterious sages who dwell in Himalayan caves.†

Buddhism reacted against the stiffness of the old order, which it tried to "humanize". The Buddhist reformers thought that by destroying the rigid frame of ancient society they would be able not only to preserve its culture but to give it a new impulse. They imagined that a choice could be made between values whose importance they recognized and certain social rules and conceptions which they were not ready to accept. Circumstances, however, did not always justify this distinction and under Buddhism the old culture very quickly declined. When the representatives of the old order, who had been able to maintain their tradition underground through the centuries of persecution, arose again, their intellectual and cultural superiority was in many fields so great that Buddhism was defeated. In hardly more than a few decades, Buddhism, by the mere strength of intellectual argument, was wiped out from the whole Indian continent over which it had ruled for a thousand years. It was then (during the sixth and seventh centuries) that an attempt was made, under the leadership of Śhaṅkarāchāryă, to restore Hindu culture to its ancient basis.

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* *Transliteration*—The Sanskrit alphabet represents a complete phonetic system. This characteristic is not preserved in the generally accepted methods of transliteration. But changing the usual system as little as possible, we transliterate:

च as ch; छ as chh; च्छ as ch'h; the soft dental श as śh; the hard palatal ष as ṣh; ऋ as ṛi; ऌ as ḷṛi.

The final "dropping" short "a", which in classical Sanskrit exactly corresponds with the French mute "e", bears a short accent. E.g. Śhivă should be pronounced almost like the English word *shiver*.

† A short account of the contents of the Gāndharvă Vedă, said to have been collected from such sources, has been published in Motilal Gauḍ's *Hindutvă* (in Hindi), Benares, 1938.

A number of eminent Brāhmaṇăs were entrusted with the task of recovering or re-writing the fundamental treatises on the traditional sciences. For this they followed the ancient system which starts from a metaphysical theory whose principles are common to all aspects of the universe, and works out their application in a particular domain. In this way the theory of music was reconstructed.

In certain cases the number of texts that had been preserved was sufficient and the task of reconstruction was comparatively easy; in other cases it proved almost impossible. Musical theory and the theory of language had been considered from the earliest times as two parallel branches of one general science of sound. Both had often been codified by the same writers. The names of Vaśhiṣhṭhă, Yajñavalkyă, Nāradă, Kaśhyapă, Pāṇini are mentioned among these early musicologist-grammarians. Nandikeśhvară was celebrated at the same time as the author of a work on the philosophy of language and of a parallel work on music. His work on language is believed to be far anterior to the *Mahābhāṣhyă* of Patañjali (attributed to the second century B.C.)* into which it is usually incorporated, though it is thought to be probably posterior to Pāṇini, who himself, according to modern grammarians, lived not later than the sixth century B.C. The chronology of works on music would seem, however, to place both Pāṇini and Nandikeshvarā at a much earlier date. The work of Nandikeshvarā on the philosophy of music is now believed to be lost,* but fragments of it are undoubtedly incorporated in later works. At the time of the Buddhist ascendancy, when so much of the ancient lore had to be abandoned, grammatical works were considered more important than musical ones because the grammatical theory was essential for the understanding of the Vedic texts and of all the subsequent philosophical systems. From the earliest times, this theory of grammar had been condensed into aphorisms that could easily be memorized and, when the need arose, transmitted orally. They could thus be kept intact for centuries, in secret, escaping all possible investigation.

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* The date of Patañjali may however be much earlier. The main modern argument used to fix his date as late as the second century B.C. is based on an example in his grammar (3,2,111) which reads:

"The Yavană (Ionian) was besieging Sāketă (Ayodhyā), the Yavană was besieging Madhyamikā."[1] The Hindu historians, however, consider that the term "Yavană" (Prākṛită "Yonas"), later used for "Greeks", was a common name for all the people living beyond the North West frontier.

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* A small surviving part of an anonymous manuscript in the Bikaner Library, called *Rudrā-ḍamarūdbhavā-sūtrā-vivaraṇam* (published by Mādhava Kṛishṇā Sarma in the *New Antiquary*, June, 1943), explains the formation of musical sounds on the basis of the Maheshvarā Sūtrās, which Nandikeshvarā also takes as the basis of the philosophy of the Sanskrit language. This must either be a fragment of the work of Nandikeshvarā or a study directly based upon it. The first part of the manuscript is a fragment of another work in no way connected with the second part. It deals with the qualities and defects of singers in verses also found in the *Saṅgītā Ratnākarā* of Shārṅgadevā.

A part of Nandikeshvarā's work on dancing, the *Abhinayā Darpaṇā*, has been printed (Calcutta 1934, with English translation by Manomohan Ghosh). An earlier translation by Ananda K. Coomaraswamy appeared under the title *The Mirror of Gesture* (Harvard University Press, 1917).

Further fragments of Nandikeshvarā's technical work on dancing and music, the *Bharatā-arṇavā* in particular, lie, unpublished, in the Tanjore and Madras libraries.

"On the Eastern border of this land (India) live the Kirātā-s (aborigines) and on the Western the Yavanā-s." (*Mārkandeyā Purānā*, 57, 8.)[2]

Originally the term seems to have been used for peoples like the Cretans and Myceneans who occupied Asia Minor and the Greek mainland and islands long before the Achean and Dorian invasions. The fact that Western history has kept practically no record of their advanced state of civilization and of their contacts with the East is no proof that these did not exist. A careful study of the Puranic texts referring to the Mediterranean civilizations anterior to Athens and Rome would yield very interesting documents.

By many ancient peoples the word Yavanā was used for inhabitants of Ionia, a country celebrated from very remote times for its twelve (later thirteen) cities, and which apparently included the Greek coast and islands and the Northern coast of Asia Minor. *Genesis* gives the name as *Yovon* יָוָן which is thought to refer mainly to the island of Cyprus, which the Babylonians visited at a very early period (circa. B.C. 3750). The name "Yovon", in the Bible, often refers, also, to the lands later inhabited by the Greeks.

The word Yavanā or Ionian also occurs in the Tel-el-Amarna Tablets (fifteenth century B.C.) as *Yivana*, and in the cuneiform inscription of Sargon (B.C. 709) as *Javanu*. In the latter case it refers to the island of Cyprus, where it chiefly was that the Assyrians came in contact with the Ionian power.

Every science could not, however, be easily condensed into aphorisms, and the preservation of the theory of music, among others, had apparently to depend on lengthy texts difficult to memorize entirely; though, from the kind of differences that appear between the various versions of some of them, it seems that these too were transmitted orally over a long period.

The material available for the reconstructive work of the medieval authors consisted in a certain number of these older books on music which they used as a base; but it appears that these medieval scholars had but little knowledge of the physical properties of sound or of the laws of acoustics. This resulted in their attempt to explain, with the most unexpected misconceptions and mistakes, basic principles laid down in the ancient treatises with a rare knowledge of physical as well as metaphysical reality—a knowledge that modern means for the study of sound now allow us to appreciate more fully.

Very like the Chinese philosopher who, knowing that there must be five elements, explains that they are water, air, earth, silk and bamboo, so medieval Sanskrit writers make doubtful assertions about microtonal intervals (śhrutis), basic scales (grāmăs), the correspondences of the notes, and so on. Yet since their attitude was one of respect and faith towards the ancient authors, the explanations alone are mistaken. They did not usually attempt to reshape the theory, which therefore remained in essentials as it was, and they reproduce lengthy passages from the ancient books without alteration. This is of course fortunate for us. Wherever we happen to possess more light on the acoustic basis of these definitions, we can reconstruct the right interpretation and see how accurfitely these principles were enunciated from the first.

As happens at every epoch, medieval writers tried to and in the ancient books the confirmation of what they believed they knew instead of a description of what they did not know. This attitude obviously limited their musical theory and confused all the points that dealt with musical forms unknown to them. It reduced the theory to little more than a description of the musical system in use in the India of their day, whereas its purpose was to provide a general theory of sound. This may also explain the difficulties met with by modern musicologists when they wish to bring back within the frame of the medieval theory the musical system in use in India at the present time, a system which in some of its features is quite distinct from the medieval one.

The musical system upon which the Indian "classical music" of to-day is based appears to be even more limited than the medieval one and has also to some slight extent modified its form under influences from outside. And thus, though it is necessarily included in the definitions of the Gāndharvă Vedă—because these definitions refer to acoustic facts and not to any particular system—it is not always in accordance with the explanations of medieval scholars.

In this book, since we are dealing exclusively with the living music of Northern India only such quotations will be given from the classical books both pre- and post-Buddhistic as refer to musical forms still in use. The author hopes to make the general theory of music of the Hindus and the philosophy of sound, as they are explained in the Gāndharvă Vedă, the subject of another study.

*The Antiquity of Indian Music**

It has been said that there is a gap between the Indus civilization (at present believed to date from the third or second millennium B.C.) and the beginning of Buddhist times, about the fifth century B.C.

We are sometimes led to believe that, except for the Vedic texts, the language of which is quite distinct from classical Sanskrit, no texts remain from that enormous period of time. It should however not be forgotten that, according to Hindu tradition, the Vedic texts, at first transmitted orally, had already been written down at a much earlier date: Buddhism (as three centuries earlier Jainism had done) reacted against the use of Sanskrit as an already too ancient priestly language no longer understood by the common people, a language they wanted to replace by more common dialects such as Pāli or Māgadhī, derived from classical Sanskrit through centuries of popular misuse. There is therefore solid linguistic evidence to suggest that a great number of Sanskrit works may be by many centuries anterior to the reformation of Jainism by Pārśhvanāthă at the beginning of the eighth century B.C.[*] Furthermore, the date given by Hindu tradition for the Mahābhārată war is about 3,000 B.C., a date which seems to be corroborated by the astronomical observations found in many Sanskrit works. This corresponds with the period of Mohenjodaro.

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* See Foreword.

In fact the period extending from the Mahābhārată war to the beginnings of Buddhism may well have been one of the greatest the culture of India has known, and its influence extended then (as indeed it still did much later) from the Mediterranean to China.[†] Traces of its Mediterranean aspect have been found in the Cretan and Mycenean remains as well as in Egypt and the Middle East.

The Vedăs, which until the beginning of this period had been transmitted orally, were then written down, and, later on, the Epics and Purāṇăs. Most of the treatises on the ancient sciences also belong to that age, though many may have been to a certain extent re-shaped later on. Ananda K. Coomaraswamy speaks of this "early Asiatic culture which once extended from the Mediterranean to China and as far south as Ceylon . . . in the second millennium B.C.".[‡]

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[*] Jainism is considered to have begun from Ṛikhab Devă, an extremely ancient figure whose life-story is told in the Bhāgavată Purāṇă. The dates of the two last reformers only of Jainism, Pārśhvanāthă (born in 817 B.C.) and Mahāvīr (born in 599 B.C.), are historically known and it is through them that Jainism is said to have been finally fixed in its present dual form.

[†] The ancient *Kinnari Vīṇā* or *Kin*, for example, became known in China as the *Khîn*, a stringed instrument said to have been played by the first Emperor, Fu-Hī (circa 3000 B.C.). The Khîn is further mentioned in ancient Chinese chronicles such as the *Chî Ki* (second century B.C.) in reference to events of the sixth or seventh century. According to the Li Ki, Confucius (551–478 B.C.) always had his Khîn with him at home, and carried it when he went for a walk or on a journey.

In *Genesis* (iv, 21 and xxxi, 27) a stringed instrument of the same kind is called *Kinnor* (כּנּור). David used to play the *Kinnor* as well as the *nebel* (lute).

[‡] A. K. Coomaraswamy: *Arts and Crafts of India and Ceylon*, Foulis, 1913.

So far as music is concerned, there is every probability that some of the texts quoted in later works were in existence many centuries before Buddhism. The practice of naming as well as quoting older authorities can allow us to establish a chronology, the author quoted being necessarily more ancient. Whenever we happen to know the date of one author we can thus generally know which authors came before him and which after. A careful study of a number of works which still survive but have not been published and are difficult of access would however be needed to make this chronology complete.

The antiquity of Indian theatrical art and musical theory was well known to the ancient world. According to Strabo (*Geography* x, II, 17) the Greeks considered that music "from the triple point of view of melody, rhythm and instruments" came to them originally from Thrace and Asia. "Besides, the poets, who make of the whole of Asia, including India, the land or sacred territory of Dionysos,* claim that the origin of music is almost entirely Asiatic. Thus, one of them, speaking of the lyre, will say that he causes the strings of the Asiatic cithara to vibrate."

Megasthenes† says that Dionysos "taught the Indians to worship the other Gods and himself by playing cymbals and drums: he also taught them the satyr dance which the Greeks call *kordax*".

"This is because they are, of all peoples, the greatest lovers of music and have practised dancing with great love since the days when Bacchus and his companions led their bacchanalia in the land of Ind." (Arrian: *Exp. Alex.*, VI, 3, 10.)

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* Many ancient historians spoke of Dionysos (or Bacchos) as having lived in India. Megasthenes, who came to India in 302 B.C., tells us that the Indians counted 153 kings and 6,042 years between Dionysos and Alexander (who entered the Punjab in 329 B.C.). Similar information is also given by Pliny the Elder who, however, gives the number of years as 6,451. By comparing these Greek dates with those of the dynasties given in the different Purāṇăs, several attempts have been made to identify Dionysos with some early figure of Indian History (particularly Manu or Kṛishṇă). But from the similarity of the legends it appears that Dionysos must be Ṡhivă and that the dates refer to one of his chief incarnations, as it is described in the *Ṡhivă Purāṇă.*

Ṡhivă is said to have been the first teacher of one of the most important traditions of music and dancing in India. Until quite a late period this tradition seems to have remained distinct from that of the *Gāndharvă Vedă.* Many Sanskrit works (a few of which are still available) were attributed to Ṡhivă or his followers.

† Quoted by Arrian in his *Indika,* VII, 8 (written in 150 B.C.).

The Sanskrit Writers on Music

The main Sanskrit treatises on music appear, at first sight, to present a mass of conflicting definitions. Careful study of the divergences and similarities between certain groups of texts, however, shows that these belong to different classes and schools: some are original works based upon coherent theory and accurate experience, the rest more or less adapted compilations. From the point of view of Hindu tradition—one which impartial modern scrutiny seems to support—it is the earlier works which have the greater authority and represent the original theory. Although fragments of several such works are available, most of them now appear to be lost or inaccessible.

Among important landmarks of the literature on music must also be counted portions of certain Purāṇăs, particularly the Vişhṇu Dharmottară, Mārkaṇḍeyă Purāṇă and Vāyu Purāṇă. The Hindus claim a great antiquity for these Purāṇăs and this seems to be corroborated by the technical terms used in reference to music. These Puranic texts are however often difficult to read because of the abundance of copyists' mistakes in technical passages.

The Sanskrit authors on music can be divided into four main periods. The first period is that of those whose names are mentioned in the Purāṇăs and in the Epics (Mahābhārată and Rāmāyaṇă), the second that of the authors mentioned in the early medieval works alone, and not in the works of the first period. These must necessarily belong to the intermediary age. The third period is that of the authors who wrote between the early medieval Hindu revival and the Muslim invasion, and the last or modern period that of Sanskrit writers under Muslim and European rule. Exact dates can usually be ascertained only for the authors of these two last periods.

The First Period (The Vedic-Purāṇic-Epic Period)

The names of authors belonging to this early period are numerous. The few works that survive allow us to fix the chronology of the most important of them with a certain amount of accuracy, but any attempt at fixing definite dates or periods could only be conjectural. We can safely consider that the lower limit given by the bulk of Purāṇic and Epic literature places this first period of literature on music in what we may call the Pre-Buddhistic age.

A chronological chart can be built up showing the relative anteriority of authors mentioned or quoted in the works available in full or in fragments (see opp. p. 32). Although it is far from exhaustive, this chart shows the affiliations between the most important Sanskrit writers on music of the early period, which must have extended over many centuries. Most of these early works are archaic in their language.

The few difficulties we meet in establishing their chronology, can in the main be solved.

The Different Nāradă-s

There were probably three authors known by the name of Nāradă. One, the author of the *Nāradīyă Śhikṣhā*, is probably the earliest writer on profane music any of whose writings have survived in full. He is quoted by all subsequent writers of the early period, who in turn are quoted by later Nāradă-s, the authors of the *Saṅgītă Makarandă* and the *Chatvārimśhach' hată Rāgănirūpaṇam.*

According to tradition, the *Nāradīyă Śhikṣhā* forms part of the later Vedic literature and although some attempts have been made to date this work rather late, there is no solid evidence to make us disbelieve the tradition. The fact that the *Nāradīyă Śhikṣhā* mentions the names of only a few of the earliest authorities on music who are also mentioned in the *Vaśhiṣhṭhă* and *Yājñavalkyă Śhikṣhās*, seems to confirm it as a very early work. If we were to consider the *Nāradīyă Śhikṣhā* a late work we should have to make room for some other very early work of the same description forming the link between Vedic chant and profane music and mentioned by Yāṣhṭikă, Nāradă II, Kohală, Mataṅgă and practically all subsequent authors. There seems, however, to be no sufficient reason to doubt the authenticity of the available *Nāradīyă Śhikṣhā.*

The *Pañchamă Samhitā* and *Nāradă Samhitā* are probably the work of the later Nāradă (Nāradă II), the author of the *Saṅgītă Makarandă.*

The Bharată Problem

The available work of Bharată, the *Nāṭyă Śhāstră*, is a compilation which has been variously dated between the second century B.C. and the fourth century A.D. It mentions Kohală and Dattilă but not Matangă and probably contains fragments of the work of Nandikeśhvară, Kohală, etc., and the earlier *Bharată Śhāstră-s*. In fact it may be doubted whether a sage Bharată ever existed. If he did exist he must have been the Bharată Vṛiddhă (Bharată the Elder) mentioned by Śhāradātanayă, as distinct from the author of the *Nāṭyă Śhāstră*. The word "bharată" means a dance-actor and was used as a common name in the title of all the treatises on stage technique. Thus we hear of Ādi Bharată, Nandikeśhvară Bharată, Arjună Bharată, Matangă Bharată, Kohală Bharată, etc. "Bharată nāṭyă śhāstră" would then simply mean "the text-book of the dance-actor" and this is very much what it is—a practical compilation of authoritative works on the subject periodically brought up to date.

The *Nāṭyă Śhāstră* cannot, therefore, be taken as a sure basis for determining chronology and we should not be surprised to find Bharată himself mentioning as his sons several authors later than the original *Nāṭyă Śhāstră*, though all of them belong to an early period* or must at least be anterior to the latest recension of the *Nāṭyă Śhāstră*.

Matangă

It seems at first difficult to know in which period to place Matangă, the author of the Bṛihaddeśhī. The text mentions a number of early authors, including Yāṣhṭikă and Bharată. It has also an extensive commentary which mentions still further writers, including Nandikeśhvară, Kohală and Dattilă. Some medieval and modern authors have considered this commentary the work of Mataṅgă himself. But this is unlikely since it mentions Kohală, who himself, in a passage reproduced by Kallināthă, quotes Mataṅgă. The name and the story of the sage Mataṅgă are mentioned in the *Rāmāyaṇă* and the *Mahābhārată* and in several Purāṇăs. This places him definitely in the early period.

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* The tradition is that Bharată had four sons—Śhāṇḍilyă, Vātsyă, Kohală and Dattilă.

"I taught the perfect practice (of music) to my sons, Śhāṇḍilyă, Vātsyă, Kohală and Dattilă." (*Nāt. Śh.* 1–26.)[3]

"The family of Bharată-s will be made famous in the future by the Bharată-s—Kohală, and, after him, Vātsyă, Śhāṇḍilyă, Dattilă." (*Nāt. Śh.* 36, 70–71.)[4]

These obviously later additions only mean that these four authors are considered the direct recipients of the tradition of Bharată, and their work has therefore great authority.

The Three Chatură-s

A quotation from Tumburu is found in Kallināthă's commentary on the *Saṅgītă Ratnākară* (1, 3, 10–16). The same quotation in the commentary on the 27th śhlokă of Mataṅgă's *Bṛihaddeśhī* is, however, attributed to Chatură. But Chatură is a name given to Kallināthă himself and this commentary might be thought to be late enough to quote him. But Simhabhūpālă—more than a century before Kallināthă—repeatedly quotes from this commentary on the *Bṛihaddeśhī* which he seems to consider the work of Mataṅgă himself. It would therefore appear that the title of Chatură (clever) was also given to the early writer Tumburu, the same name having been used later for Kallināthă and also for Dāmodară Miśhră, the author of the *Saṅgītă Darpaṇă.*

Mātṛiguptă and Rudraṭă

The Mātṛiguptă mentioned by Nārădă (in the *Chatvārimśhach'hată Rāgănirūpaṇam,* and as Mātraguptă, in the *Saṅgītă Makarandă*) has sometimes been identified with the celebrated poet Mātṛiguptă of the seventh century. This is not absolutely impossible, though it is unlikely.

Similarly, the Rudraṭă mentioned by the author of the commentary on the *Bṛihaddeshī* and also by Abhinavă Guptă has been said to be the ninth century author of *Kāvyālaṅkāră,* or Rudră Bhaṭṭă, the author of *Śhṛiṅgāratilakă.*

Such identifications should not be attempted without solid ground. The Sanskrit literature on music extends over so vast a period that similarities of name are bound to occur. The difficulty is rather to distinguish between numerous authors of the same name. We know of at least ten Bhaṭṭă-s, authors of different works, six Somă-s or Someśhvară-s, five Nārāyaṇă-s, four Dāmodară-s, etc. Among the works still available, we have two *Saṅgītă Ratnākară-s*, three *Saṅgītă Nārāyaṇă-s*, four *Bharată Śhāstră-s*, four *Rāgă Mālā-s*, and so on. Hasty identifications are sure to lead to mistakes such as have already been made in the case of the different Dāmodară-s.

Many of the available works of the early period have been re-shaped over and over again. This is only natural, for they were teachers' text-books and not library records. But to take as an earliest limit for their writing the date of their latest re-shaping, as some over-cautious students have a tendency to do, gives a wholly erroneous picture of musical history.

All that is available of the early works is evidently directly based on the *Gāndharvă Vedă* and the Śhivă tradition. In these we find a theory of sound co-ordinated with experienced facts which we can easily grasp. Taking into account the changes that have occurred in the scale, in the tonic and so on, the interpretation of the early works presents no very arduous problem except that of restoring the text where it has been corrupted.

If the commentary on the *Bṛihaddeśhī* really is the work of Mataṅgă the lower limit of the Epic-Puranic period in the chart (opposite p. 32) must be placed before Gāndharvă Rājā, otherwise the chronology it shows will not be much affected.

The First Period

Several names mentioned in later works may refer to some of the earliest authors. For example Pārvatī-pati and Śharvă are names of Śhivă: they may stand for Śhivă, the first, divine expounder of music, or for some of his later followers; Māgheśhă may be Indră, Kamalāsyakă may be Brahmā. Yet it would be incautious to make such an assertion without evidence since these are names that frequently occur.

The Kṣhemarājă mentioned by Kohală cannot be the celebrated disciple of Abhinavă Guptă, since Kohală's lowest possible limit is the fourth century A.D., six centuries before Abhinavă Guptă.

The Second Period (*Buddhistic*)

This period (which we may generally term Buddhistic since, according to the Hindu tradition, Buddhism arose and declined in India within its limits) extends from the Epic-Puranic period to the early medieval Hindu revival.

A few important works that probably belong to the beginning of this period are available (see previous chart). These include extensive fragments of Kohală.

The lower limit of the early works of the first period is set by the fact that Kohală and Dattilă are mentioned in the *Nāṭyă Śhāstră*, the last re-shaping of which, as we have already seen, is variously dated between the second century B.C. and the fourth century A.D., the first of these dates being the more likely.

Very few of the numerous musical works of this second period have so far been found or in any way edited or studied. In most cases we have to content ourselves with authors' names without attempting to establish their chronological relationship. The authors who can safely be attributed to this period are those not mentioned by any writer of the pre-Puranic-Epic period but mentioned as authorities by authors of the tenth, eleventh and twelfth centuries (chiefly Abhinavă Guptă, Śhāradātanayă, Nānyă Bhūpālă, Pārśhvadevă and Śhārṅgadevă).

This gives us a list of names, some of which may however belong to the first period or to the earlier part of the third period.

Writers of the Second (*Buddhist*) *Period*

Āstikă, Apisali (author of a *Śhikṣhā*), Uttară, Uvată, Umāpati+, Kātyāyană+, Kāmadevă, Kumbhodbhavă, Ghaṇṭakă, Chhatrakă, Dattă, Devărājă (may be Devendră), Drauhiṇi, Dhenukă, Priyātithi, Bindu Rājă, Bṛihat Kaśhyapă, Bhaṭṭă, Bhaṭṭă Yantră, Bhaṭṭă Sumanas, Bhaṭṭa Vṛiddhi, Bhaṭṭă Gopālă+, Bhaṭṭă Śhubhākară+ (commentator on *Nāradīyă Śhikṣhā*), Rahulă, Venă, Vyāsă, Vāchaspati, Śhrī Harṣhă (different from the patron of the seventh century poet Bāṇă), Sakali garbhă, Sūryă (may be Bhāskară), Sureśhvară,+ Someśhvară I+ (different from the two later Someśhvară-s, authors respectively of *Manasollāsă* and *Saṅgītă Ratnāvalī*).

The Third (Medieval) Period

This period corresponds with the Hindu revival after the decline of Buddhism. All the earliest books of this period are lost. The first available medieval work is the *Abhinavă Bhāratī*, a tenth century commentary by Abhinavă Guptă on the *Nāṭyă Śhāstră*.

Authors of the Third (Medieval) Period

I

Udbhaṭă (late eighth century): Comm. on *Nāṭyă Śhāstră*
Lollaṭă (between Udbhaṭă and Abhinavă Guptă, c. 825): Comm. on *Nāṭyă Śhāstră.*
Śhaṅkukă (id., c. 850): Comm. on *Nāṭyă Śhāstră.*
Utpală Devă (tenth century; Abhinavă's guru's guru).
Nṛisimhă Guptă (Abhinavă's teacher and father).
Abhinavă Guptă (end of tenth century): *Abhinavă Bhāratī*, comm. on *Nāṭyă Śhāstră.*
Bhojă (King) (1010–1055).
Simhană (eleventh century or early thirteenth, before Hammiră).
Abhayă Devă (a Jain) (1063– ?).
Mammată (1050–1150): *Saṅgītă Ratnă Mālā.*
Rudrasenă (before Devendră).
Someśhvară II (1131): *Manasollāsă* or *Abhilāṣhārthă Chintāmaṇi.*
Lochană Kavi* (1160): *Rāgă Taraṅgiṇī.*

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* There has been some speculation about the date of Lochană Kavi. The *Rāgă Taraṅgiṇī* bears the date 1082 of the Śhakă era. This would be 1160 A.D. Lochană Kavi, however, mentions the names of Jayadevă and Vidyāpati. The date of Jayadevă is about 1116 A.D., but the known Maithili poet Vidyāpati is thought to have lived about the fourteenth century. Either Lochană lived after the fourteenth century, or this name refers to some other Vidyāpati. It appears that there is a local Śhakă era in the East of India according to which 1082 would be 1700 A.D. This would bring Lochană to a much later date, but against it there is the fact that Lochană is quoted by Hṛidayă Nārāyaṇă (c. 1667) who himself is quoted by Bhavă Bhaṭṭă (c. 1700).

The work of Lochană has therefore been dated either 1160 A.D., or fourteenth century (after Vidyāpati), or 1700 A.D.

Since the last date seems impossible, it is likely that the earlier of the remaining dates is the true one and that as some Bengali scholars assert, there was an earlier Vidyāpati.

Paramardī (1165–1203 ?).
Devendră (after Bhojă): *Saṅgītă Muktāvalī.*
Someśhvară III (1174–1177): *Saṅgītă Ratnāvalī.*
Śhāradātanayă (c. 1200): *Bhāvă Prakāśhă.*
Nānyă Bhūpālă or Nānyă Devă (eleventh or twelfth century, between Abhinavă Guptă and Śhārṅgadevă): *Sarasvatī Hridayālamkāră.*
Jaitră Simhă (c. 1213? before Hammiră): *Bharată Bhāṣhyă.*
Śhārṅgadevă (1210–1247): *Saṅgītă Ratnākară.*

II

Jayasimhă (before Hammiră).
Gaṇapati (c. 1253? before Hammiră).
Jayasenă (c. 1253): *Nṛittă Ratnāvalī.*
Hammiră (1283 or 1364): *Saṅgītă Śhṛingāră Hāră.*
Gopālă Nāyakă (1295–1315).
Pratāp (King ?): *Saṅgītă Chūḍāmaṇi.*
Palkuriki Somanāthă (thirteenth–fourteenth century): *Paṇḍitārādhyacharită, Bāsavă Purāṇă.*
Vasantă Rājā (King Kumārăgiri, before fourteenth century): *Vasantă Rājīyă Nāṭyă Śhāstră.*
Digambară Suri (before Pārśhvadevă).
Pārśhvadevă (before Simhă Bhūpālă, after Bhojă and Paramardī): *Saṅgītă Samayă Sāră.*
Śhārṅgadhară (1300–1350): *Śhārṅgadhară Paddhati.*
Haripālă (1309–1312): *Saṅgītă Sudhākară.*
Śhrī Vidyā Chakravartin (early fourteenth): *Bharată Saṅgrahă.*
Sudhākalasă (1323–1349): *Saṅgītă Upaniṣhad.*
Simhabhūpālă (c. 1330): *Sudhākară*, a comm. on *Saṅgītă Ratnākară.*
Viśhveśhvară (c. 1330).
Vidyāraṇyă (1320–1380): *Saṅgītă Sāră*
Vemă Bhūpālă (late fourteenth–early fifteenth century): *Saṅgītă Chintāmaṇi.*
Gopendră Tippă Bhūpālă (1423–1446): *Ṭālă Dīpikā.*
Kumbhakarṇă (1433–1468): *Saṅgītă Rājā, Saṅgītă Kramă Dīpikā.*
Kallināthă (middle fifteenth century): *Kalānidhi*, a comm. on *Saṅgītă Ratnākară.*

Kamală Lochană (c. fifteenth ?): *Saṅgītă Chintāmaṇi*, *Saṅgītāmṛită*.

Keśhavă (between 1240 and 1664): comm. on *Saṅgītă Ratnākară*.

Rāmānandă Nārāyaṇă Śhivă Yogin (after thirteenth century): *Nāṭyă Sarvasvă Dīpikā*.

The longest work of the medieval period is the *Saṅgītă Ratnākară* of Śhārṅgadevă (1210–1247 A.D.). It has several valuable commentaries, two of which—by Simhabhūpālă (c. 1330) and by Kallināthă (fifteenth century)—have been published.* The *Rāgă Taraṅgiṇī* of Lochană may also belong to this period.

The Fourth (Modern) Period

With the advent of foreign invasions musical culture quickly decays. A few authors, however, either attempt to restate the old theory or to re-shape it so that it may agree with a changing practice. Musicians had found many points of the reconstructed medieval theory irrelevant when it was confronted with the musical practice of their day. A series of attempts was therefore made to reconcile it with the facts. The chief works of this kind are the *Svară-melă-Kalānidhi* of Rāmāmātyă (1549), the *Rāgă Vibodhă* of Somănāthă (1610), the *Saṅgītă Darpaṇă* of Dāmodară Miśhră (1625) and especially the *Chaturdaṇḍi Prakāśhikā* of Veṅkaṭă Makhin (1620) the systematizer of Karnatic music. But these efforts• only added to the confusion, for in their attempt to explain apparent contradictions these late authors often forced very far-fetched interpretations upon the ancient technical terms and theories.

There followed a series of more recent works which complete the link between ancient and modern music. In Northern India the *Saṅgītă Pārijātă* of Ahobală (c. 1690) is considered the most important of these.

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* In the first chapter of his *Śaṅgītă Ratnākară*, Śhārṅgadevă gives the following list of his chief predecessors:

"Sadăśhivă, Śhivā, Brahmā, Bharată, Kaśhyapă Muni, Mataṅgă, Yāṣhṭikă, Durgā-śhakti, Śhārdūlă, Kohală, Viśhākhilă, Dantilă (Dattilă), Kambală, Aśhvatară, Vāyu, Viśhvāvasu, Rambhā, Arjună, Nārадă, Tumburu, Āñjaneyă, Mātṛiguptă, Rāvaṇă, Nandikeśhvară, Svāti, Guṇă, Bindurājă, Kṣhetră-rājă, Rāhală, Rudraṭă, Nānyă Bhūpālă, and king Bhojă, Paramardī and Someśhă the world emperor; then the commentators of Bharată: Lollaṭă, Udbhaṭă, Śhaṅkukă, Bhaṭṭă, Abhinavă Guptă, the famous Kīrtidhară and many more in the past were experts in music."[5]

Chief Writers of the Fourth (Modern) Period

Harināyakă (c. 1500): *Saṅgītă Sără.*
Meṣhăkarṇă (before 1509): *Răgă Mālā.*
Madanăpālă Devă (c. 1528) *Ānandă Sañjīvană.*
Lakṣhmī Nārāyaṇă (first quarter of the sixteenth century): *Saṅgītă Sūryodayă.*
Lakṣhmīdhară (sixteenth century): *Bharată Śhāstră Granthă.*
Rāmāmātyă (1550): *Svară-melă-kalā-nidhi.*
Puṇḍarīkă Viṭṭhală (late sixteenth century): *Ṣhadrāgă Chandrodayă, Rāgă Mālā, Rāgă Mañjarī, Nartană Nirṇayă.*
Tanappāchāryă (Tān-sen ?) (guru of Veṅkaṭă Makhin. c. 1600).
Mādhavă Bhaṭṭă (before 1610): *Saṅgītă Chandrikā.*
Somănāthă (1610): *Rāgă Vibodhă.*
Govindă Dīkṣhită (1614): *Saṅgītă Sudhā.*
Govindă (?): *Sañgrahă Chūḍāmaṇi.*
Veṅkaṭă Makhin (c. 1620): *Chaturdaṇḍi Prakāśhikā.*
Dāmodară Miśhră (1625): *Saṅgītă Darpaṇă.*
Hṛidayă Nārāyaṇă Devă (c. 1667): *Hṛidayă Kautukă, Hṛidayă Prakāśhă.*
Bāsavă Rājā (1698–1715): *Śhivă Tattvă Ratnākară.*
Ahobală (before Śhrī Nivāsă and Bhavă Bhaṭṭă. First half of seventeenth century or earlier): *Saṅgītă Pārijātă.* (translated into Persian in 1724).
Śhrī Nivāsă (late seventeenth century): *Rāgă Tattvă Vibodhă.*
Abhilasă (seventeenth century): *Saṅgītă Chandră.*
Jagaddhară (fourteenth to seventeenth century): *Saṅgītă Sārasvă.*
Kamalākară (later than 1600): *Saṅgītă Kamalākară.*
Kikarājă (seventeenth century): *Saṅgītă Săroddhără.*
Jagajjyotirmallă (seventeenth century): *Saṅgītă Sără Saṅgrahă, Saṅgītă Bhāskară.*
Raghunāthă Bhūpă (seventeenth century): *Saṅgītă Sudhā.*
Naṅgă Rājā (?): *Saṅgītă Gaṅgā Dharaṇă.*
Vedă or Muḍavedă (during the reign of Śhāhājī 1684–1712): *Saṅgītă Makarandă, Saṅgītă Puṣhpāñjali.*

Vaṅgamaṇi (seventeenth century): *Saṅgītă Bhāskară.*
Śhukambhară (before eighteenth century): *Saṅgītă Dāmodară.*
Somanāryă (after 1609): *Nāṭyă Chūḍāmaṇi.*
Bhāvă Bhaṭṭă (alias Anuṣhṭupă Chakravartī after Ahobală. c. 1700): *Anupă Saṅgītă Aṅkuśhă, Anupă Saṅgītă Ratnākară, Anupă Saṅgītă Vilāsă.*
Tulajādhipă (ruled 1729–35): *Saṅgītă Sārāmṛită.*
Nārāyaṇă (King) (late eighteenth century): *Saṅgītă Nārāyaṇă.*
Kavi-ratnă Nārāyaṇă (eighteenth century): *Saṅgītă Sarani.*
Govindă (eighteenth century): *Saṅgītă Śhāstră Saṅkṣhepă.*
Gopināthă Kavi Bhūṣhaṇă (late eighteenth century): *Kavichintāmaṇi.*
Pratāp Singh (1779–1804): *Saṅgītă Sāgară.*
Balarāmă Varmā (ruled 1798–1810): *Bală-rāmă-Bharată.*
Śhrīkanṭhă (late eighteenth century): *Rasă Kaumudī.*

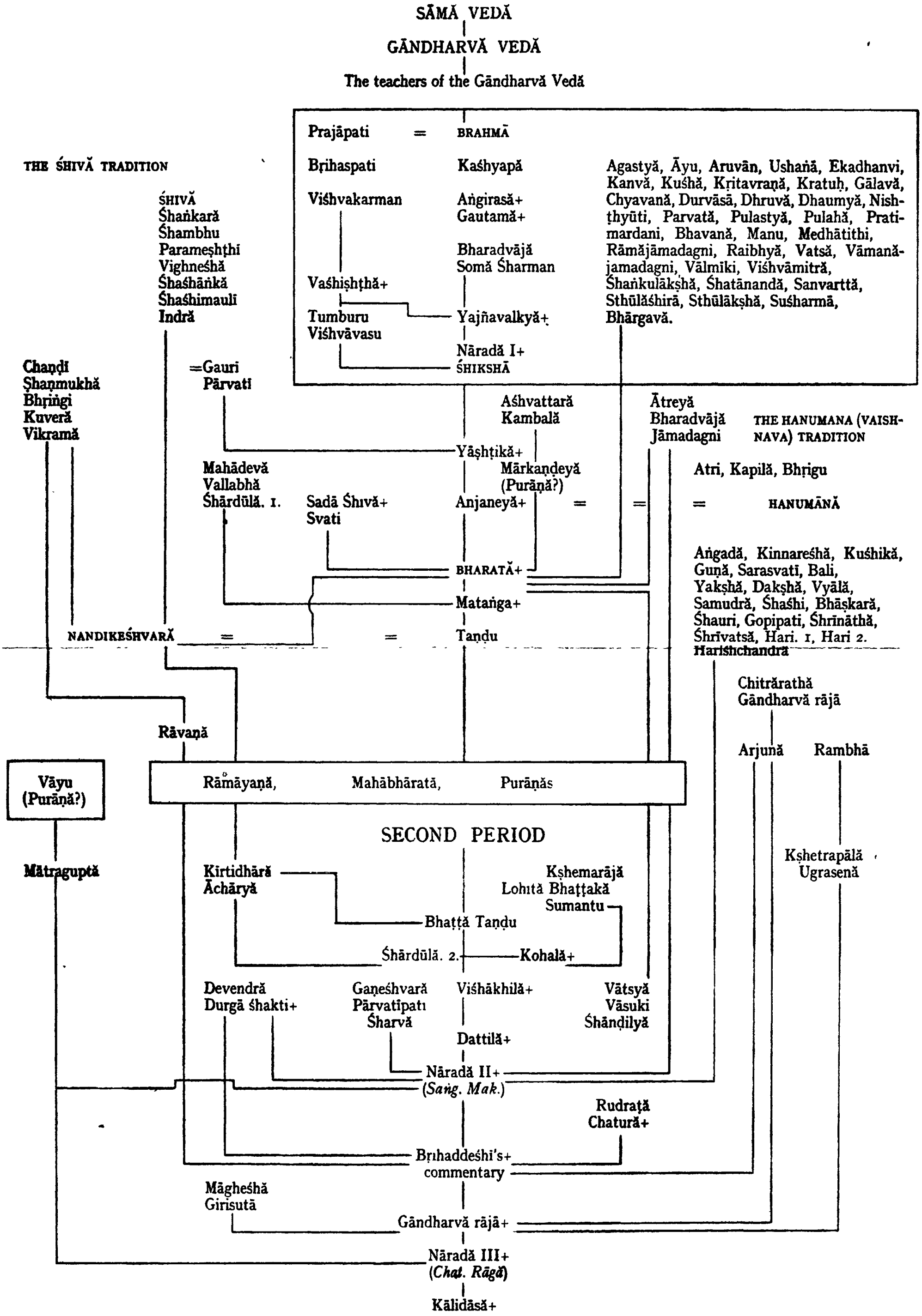
Nineteenth and Twentieth Centuries

Rāmă varmā Mahārājă: *Saṅgītă Kṛitayaḥ.*
Appā Tulsi: *Abhinavă Tālă Mañjarī, Rāgă Chandrikā, Rāgă Kalpadrumāṅkură, Saṅgītă Sudhākară.*
Kṛiṣhṇānandă Vyāsă: *Rāgă Kalpadrumă* (1843).
Appalāchāryă: *Saṅgītă Saṅgrahă Chintāmaṇi.*
Sourindră Mohan Śharmā (Rājā Tagore): *Saṅgītă Sāră Saṅgrahă* (1875).
Viṣhṇu Śharmā (Paṇḍit Bhātkhaṇḍe): *Abhinavă Rāgă Mañjarī* (1921), *Śhrīmallakṣhyăsaṅgītam* (1921).

Main authors in North Indian Languages other than Sanskrit

Rājā Mānsingh Tomar (1486–1518): *Mānă Kautuhală* (Hindi).
Tān Sen (c. 1549): *Rāgă Mālā* (Hindi).
Śhrī Rāmă Mallă: *Rāgă Vichāră* (Hindi).
Harivallabhă: *Saṅgītă Darpaṇă* (Hindi) (mss. dated 1673).
Gaṅgā Rām: *Setū* (comment. on Saṅg. Ratn.) (Hindi).
Deo Kavi: *Rāgă Ratnākară* (1673) (Hindi).

THE FIRST PERIOD



NOTE: Authors by whom some writing is available, if only a verse, are marked with an +.

Saiyid "Abd-al Wali" Uzlat: *Rāgă Mālā* (1759) (Hindusthani).
Kavi Kṛishṇă: *Rāgă Kutuhală* (1781) (Hindi).
Maharājā Sawai Pratāp Simhă Devă of Jaipur (1779–1804): *Saṅgītă Sāră* (Hindi).
Muhammad Rezza: *Nāgmat-e-Asaphi* (1813) (Persian).
Rādhā Mohan Sen: *Saṅgītă Taraṅgă* (1818) (Bengali).
Diwān Lacchhīrām; *Buddhi Prakāśhă Darpaṇă* (1823) (Hindi).
Kṛishṇānandă Vyāsă Devă: *Rāgă Kalpadrumă* (1842–1849) (Hindi and Bengali).
Chhatră Nṛipati: *Padă Ratnāvalī* (1854) (Hindi).
Chunni Lāljī Gossain: *Nādă Vinodă* (1896) (Hindi).
Bhānu Kavi (Jagannāth Prasād): *Kāvyă Prabhākară* (1909) (Hindi).

Northern and Southern Music

देश देश के भेद में भिन्न भिन्न है नाम ।

"Because countries differ, things have different names."
(*Rāgă Kalpadrumă*):

The later medieval author Rāmāmātyă wrote, in 1550 A.D., "The science of music has both in theory and in practice degenerated into conflicting views." (*Svar. Kal.* 1, 24.)[6]

Though the many schools of music in India to-day each lay claim to the same ancient treatises, there are important differences in the music of the various parts of India. Hardly any of the modes of South Indian music are exactly identical with those of North Indian. Even in the North, rāgăs and styles greatly differ from one province to another. Besides, there remain in many regions, in certain valleys of the Himalayas in particular, archaic forms of music with an upper tonic and a descending scale the study of which would be of great interest for the understanding of ancient music. Yet whatever these differences may be, they should not be over-estimated. It should be borne in mind that all these musical systems are but variations in the application of one common musical theory. They all pertain to the modal system of music expounded in the ancient treatises and their differences are not structural but merely differences in style or classification.

It is a common saying in South India that Southern music represents the more ancient school while Northern music has evolved under outside influences. Except on very minor points, this opinion does not, however, agree with the facts. South Indian music was subjected to systematic reforms, one of the main reformers being Veṅkaṭă Makhin in the seventeenth century. North Indian classical music, on the other hand, though it lent itself easily to temporary fashions, did not attempt to systematize them and seems to have remained very much what it was in spite of changes. It still conforms to-day with the definitions of the most ancient books.

The many stories that tell how the various styles of North Indian music were invented by musicians of the Muhammadan period have probably no basis in reality. Under Muslim rule, age-old stories were retold as if they had happened at the court of Akbar, simply to make them more vivid, and in conformity with the fashion of the day. Such transferences of legend are frequent everywhere. In Western countries, many a pagan god in this way became a Christian saint and many ancient legends were rearranged to fit into a Christian world. Some episodes in the life of the Buddha, for example, found their way into the *Lives of the Saints* where the Buddha appears under the name of St. Josaphat.

* * *

The impartial ear of sound-measuring instruments makes one marvel at the wonderful accuracy of the scales used by the great "Ustads" of Northern India—scales which in every way conform with the requirements of ancient Hindu theory. To say that they pertain to, or have been influenced by, the Arab or the Persian system shows a very superficial knowledge of the subject. These systems, originally mostly derived from Indian music, have become so reduced and impoverished in comparison with it that no one can seriously speak of their having had any influence on its development—unless one is referring only to the setting of certain types of poetry or to certain mannerisms or ways of sitting or of placing the voice. In fact the whole of the theory and most of the practice of Arab as well as Persian music is the direct descendant of the ancient Turkish music. At the beginning of the Muslim era, the Arabs themselves had hardly any musical system worth mentioning, and all the Arabic theoreticians—Avicenna,* Al-Farabi, Safi ud'din, and others—are claimed by the Turks as Turkish in culture if not always in race. In fact, they merely expounded in Arabic the old Turkish system interpreted in the light of Greek theory. This Turkish system was well known to medieval Hindu scholars who often mention it (under the name of Turuṣhkă) as a system closely allied to Indian music. As I have explained elsewhere,† the seventeen intervals of the octave, as used by the Arabs, are identical with seventeen of the twenty-two Indian śhrutis, and there is no modal form in Arabic music which is not known to the Hindus.

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* Avicenna was born about 980 A.D. in Balkh, in what is now known as Afghan Turkestan and, though his father is said to have been a Persian, the Turks claim him as their own in language and culture.

† See the author's *Introduction to the Study of Musical Scales*, p. 126.

CHAPTER II

THE NATURE OF SOUND

सुखिनि सुखनिधानं दुःखितानां विनोदः
श्रवणहृदयहारी मन्मथस्याग्रदूतः ।
अतिचतुरसुगम्यो वल्लभः कामिनीनां
जयति जयति नादः पञ्चमश्चोपवेदः ॥

> "Sound (Nādă) is the treasure of happiness for the happy, the distraction of those who suffer, the winner of the hearts of hearers, the first messenger of the God of Love. It is the clever and easily obtained beloved of passionate women. May it ever, ever, be honoured. It is the fifth approach to the Eternal Wisdom, the Vedă." (*Saṅgītă Bhāṣhyā.*)

ALTHOUGH the philosophy of sound is given a very important place in all the ancient treatises on music, we do not propose to deal with it very extensively here, for it is beyond the scope of this book. We shall limit ourselves to brief definitions of sound and of the different kinds of music, and then pass directly to practical description of the different elements that unite to form the Indian musical scales.

Intelligible Sound (*Nādă*)

Sound is said to be of two kinds, one a vibration of ether, the other a vibration of air. The vibration of ether, which remains unperceived by the physical sense, is considered the principle of all manifestation, the basis of all substance. It corresponds with what Pythagoras called the "music of the spheres" and forms permanent numerical patterns which lie at the very root of the world's existence. This kind of vibration is not due to any physical shock, as are all audible sounds. It is therefore called anāhată, "unstruck". The other kind of sound is an impermanent vibration of the air, an image of the ether vibration of the same frequency. It is audible, and is always produced by a shock. It is therefore called āhată or "struck".

Thus the *Saṅgītă Makarandă* (1, 4–6) says:

"Sound is considered to be of two kinds, unstruck and struck; of these two, the unstruck will be first described.

"Sound produced from ether is known as 'unstruck'. In this unstruck sound the Gods delight. The Yogis, the Great Spirits, projecting their minds by an effort of the mind into this unstruck sound, depart, attaining Liberation."[7]

"Struck sound is said to give pleasure, 'unstruck' sound gives Liberation." (*Nāradă Purāṇă*).[8]

But "this (unstruck sound) having no relation with human enjoyment does not interest ordinary men." (*Śh. tat. Ratn.* 6, 7, 12.)[9]

Not all audible vibrations are musical sounds. The sounds used in music are those whose mutual relations form an image of the basic mathematical laws of the universe. Thus musical sounds reproduce the first creation of the Primordial Intellect. This creation is at the same time a rhythm and a thought. In correspondence with this, the main characteristic of musical sounds is that, although they form simple physical relations, yet at the same time they convey ideas, they are expressions. This is why the sound of music is called "Nādă", "intelligible sound", and is said to result from the union of physical breath with the fire of intellect.

"The syllable 'Na' means breath, the syllable 'da' the fire (of intellect). Born of the union of breath and fire, intelligible sound is called Nādă." (*Saṅg. Mak.* 4, 18, reproduced in *Saṅg. Ratn.* 1, 3, 6, and *Saṅg. Darp.* 1, 39.)[10]

The Different Kinds of Musical Sound

In musical sound three main elements are usually considered—intensity, pitch and timbre.

Intensity is the relative strength of the sound, whether soft or vigorous.

Pitch is defined by the interval or the number of vibrations (śhrutis).

Timbre is the resonance of harmonics which differentiates the sound of various instruments or voices.

Timbres are classified into five main categories:

"Struck sounds are known to be of five kinds—produced by the nail (strings), by wind (flutes), from leather (drums), from metal (percussion-instruments) or from the body (the voice)." (Saṅg. Mak. 1, 7.)[11]

Sacred and Secular Music

Music is of several kinds, each of which, according to its aim, follows distinctive rules. Certain combinations of sound help mental concentration and spiritual development. These are used in the higher form of sacred music which, in India, is connected with the singing of the Sāmă Vedă. The theory of this sacred art is kept very secret for its power is said to be great.

Some aspects of the higher theory of sound are, however, often brought into practice for magical ends, for the treatment of diseases, or in taming dangerous animals. Most village magicians know how to utilize with great efficacy the psychic and hypnotic effect of certain sounds.

But there are other kinds of sound-relations which merely give pleasure, evoking tender emotions and pleasing ideas. Only such kinds of sound come within the scope of secular or Deśhī music, with which alone we are here concerned.

The following are the chief terms used in ancient books to define the different kinds of music:

GĪTĂ (*Music*):

"A particular arrangement of sounds which is pleasing [to hear] is called music (gītă). It is of two kinds—sacred or celestial (gāndharvă) and profane (gānă)." (*Saṅg. Ratn.* II, 4, 1 reproduced in *Svar. Kal.* 2, 6.)[12]

GĀNDHARVĂ (*Sacred or Celestial Music*):

"That (music) which, sung by the celestial musicians or by those who know the theory of sacred music, has come to them through the beginningless tradition, and which is the sure means of attaining Liberation, is known to the sages as Celestial (gāndharvă)." (*Saṅg. Ratn.* II, 4, 2, and *Svar. Kal.* 2, 7.)[13]

This celestial music is also called the "music of contemplation" (mārgă),* and it is said to be composed in accordance with the cosmic laws of which physical harmony is but a reflection.†

"That music, source of [all] development, which, in the beginning, was seen by the Creator in His contemplation and afterwards performed by Bharată and the other seers in the resplendent presence of Śhambhu (Śhivă), the Giver of Peace, is called the music of contemplation (mārgă)." (*Chat. Rāgă.* 1, 8–9; and *Saṅg. Ratn.* 1, 1, 22–23.)[15]

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* The derivation of the word *mārgă* is given by Kallināthă: "Mārgă means 'to contemplate' ".[14]

† The correspondences between spoken and musical sounds according to Mārgă theory are given in the *Rudră-ḍamarūdbhavă-sūtră-Vivaraṇam.*

GĀNĂ (*Profane Music*):

"That (music) which is composed according to rules by experts, which is sung in the modes of secular or worldly music (deśhī rāgăs), and which charms the people is *gānă*, profane music'." (*Saṅg. Ratn.* II, 4, 3 and *Svar. Kal.* 2, 9.)[16]

DEŚHĪ (*Secular Music*):

"The song, dance and play of instruments, different from country to country and performed as their people please, which charms the heart, is called deśhī (secular)." (*Chat. Rāgă.* 1, 10; and *Saṅg. Ratn.* 1, 1, 23.)[17]

Mataṅgă Muni considers that the word deśhī (worldly) applies to all earthly music. "Sound (dhvani) goes everywhere in every place, hence it is called deśhī." (*Bṛihaddeśhī* 1, 2.)[18]

"All the world, animate or inanimate, is subject to sound (dhvani). Sound is divided into two kinds—manifest and unmanifest. Manifest is the sound that comes to the lips in the form of a 'melodic movement' (varṇă), giving rise to deśhī (secular) music." (*id.* 1, 12.)[19]

CHAPTER III

THE SCALE

The Tonic or Drone

ALL music is based upon relations between sounds. These relations can, however, be worked out in different ways,* giving rise to different groups of musical systems, each of which has possibilities of expression peculiar to itself.

The modal group of musical systems, to which practically the whole of Indian music belongs, is based on the establishment of relations between diverse successive sounds or notes on the one hand and, on the other, upon a permanent sound fixed and invariable, the "tonic".

Contrary to common belief, modal music is not merely melody without accompaniment, nor has a song or melody, in itself, anything to do with mode. The modes used in the music of the Christian Church are modes only in name, though they may have been real modes originally. But much of Scottish and Irish music, for example, is truly modal: it belongs to the same musical family as Indian music and is independent of the Western harmonic system.

Indian music, like all modal music, thus exists only by the relations of each note with the tonic. It is this relation that determines whether a given note is a minor third, a fifth, a seventh or a fourth. The relation with the tonic, in fact, determines the expression of any given sound. The tonic must therefore be constantly heard. It can either be kept in the background like a drone or repeated at very frequent intervals, as is generally done in playing a stringed instrument. It should be remembered that the drone is not merely intended to keep the singers in tune, so that they may attack always at the correct pitch, but it is the key to all modal expression. So long as the hearer has not entirely identified himself with the tonic, but still perceives drone and melody as separate entities, it is impossible for him to follow or understand the meaning and the beauty of modal music.

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* See the author's *Introduction to the Study of Musical Scales*, p. 21.

It appears that at different periods different notes were taken as the starting-point of the scale. But the Ṣhaḍjă (Sa, C), the tonic of all modern music, seems to have been considered as such since medieval times.

"Ṣhaḍjă (Sa, C) is the first of all the notes and so it is the main or chief note." (Simh. Comm. on *Saṅg. Ratn.* 1, 4, 6–8.)[20]

Although certain notes are more usually chosen as the tonic, any sound, whatever its pitch, becomes the tonic of scales that are built upon it. Ṣhaḍjă (the tonic), which we here always transcribe as C, has not a fixed pitch like the C of keyboard instruments. Thus:

"Dattilă explains that the Ṣhaḍjă (the tonic) may be established at will at any pitch (on any śhruti) and that, by relation with it, the other notes should be established at the proper intervals." (Simh. Comm. on *Saṅg. Ratn.* 1, 4, 15–16.)[21]

But a common tonic is necessary so that the rāgăs, all built upon it, may be easily compared. In the notations of rāgăs which form the second volume of this book, the tonic in every case is C, since that is usually considered the first note of the modern Western scale, just as Sa (in present-day music always the tonic) is the first note of the present Indian scale.

With C as tonic, the white keys of any keyed instrument, such as the piano or organ, give approximately the major mode or unaltered (śhuddhă) scale, the scale of Bilāval in modern Indian music. Then the different modes can easily be visualized as modifications of this basic (śhuddhă) scale.

The fact that the tonic used by most singers is lower—often B flat (Ni komală)—is of minor importance. Once the real nature of each mode has been properly understood (and musical practice shows that this is easier if the tonic is always C) the modes can be transposed into any pitch that may be suitable for different voices or instruments.

The Seven Svarăs (Notes)

The word "note", by which we here translate *svară*, is usually taken to mean merely a certain pitch of sound; but the word *svară* means a pitch of sound plus an expression, so it would be more correctly rendered as "expressive note". As Mataṅgă says:

"The sound that generates an expression is a svară, a note." (*Bṛihaddeśhī* comm. on 1, 63.)[22]

The derivation of the word "svară" is given as follows:

"The word svară (note) is authoritatively known to mean 'that which shines of itself'—from *rājṛi* (to shine) with the word *svă* (self) as prefix." (Mataṅgă, *Bṛihaddeśhī* 1, 63.)[23]

Indian music recognizes seven main and two secondary notes or svarăs. These notes represent definite intervals and, as such, form the basic or "natural" (śhuddhă) scale. They can, however, be raised or lowered to form other scales. In that case they are considered "altered" (vikṛită). The notes that form the basic scale are called pure (śhuddhă); notes lowered by half a tone are said to be komală (soft=flat); notes raised by half a tone are called tīvră (sharp).

According to the Indian theory, the sounds of music are first perceived as relative pitches or intervals. It is only when their action has lasted for some time that these intervals convey to the mind an idea or an expression. Hence the arithmetical classification of sounds as intervals is considered prior to, and the basis of, their musical classification as "expressive notes". This differentiation, which was known to the ancient Greek as well as to the ancient Indian theorists, explains why the śhrutis, or intervals, are considered the basis of the svarăs or notes, or (in Greek terms) why the enharmonic is considered the basis of both chromatic and diatonic.

Mataṅgă says:

"Ṣhaḍjă (C) and the other notes (svarăs) are always manifested through the 'interval they form with the tonic', their śhrutis, just as a pitcher in the dark is made manifest by a lamp." (*Bṛihaddeśhī* 1, 36.)[24]

The commentary on the *Rāgă Vibodhă* (1, 14) adds: "What then constitutes a note, a svară? What is the particularity of these seven sounds? It is their intelligibility, their capacity to please the mind, to appeal to the consciousness of the hearer. And that they do this of themselves, without external aid." Niḥśhaṅkă (Śhārṅgadevă) says:

"Sound is first heard as an interval, a śhruti; but the resonance that immediately follows, conveying of itself (without external aid), an expression to the mind of the hearer, is called a 'svarā', a 'musical note'." (*Saṅg. Ratn.* 1, 3, 24–25.)[25] And:

"The expressive sound, attractive and pleasing, which resounds immediately after the exact interval (the śhruti) has manifested itself, is called svarā (note)." (*Saṅg. Darp.* 1, 57.)[26]

The notes are seven in number.

"From the [twenty-two main] intervals (śhrutis) come the seven notes (svarās) called Ṣhaḍjă, Ṛiṣhabhă, Gāndhārā, Madhyamă, Pañchamă, Dhaivată, Niṣhādă." (*Chat. Rāgă.* 1, 18–19; *Saṅg. Darp.* 1, 167; *Śh. tat. Ratn.* 6, 7, 22–23.)[27]

"Others call them (for short):
Sa(Do), Ri(Re), Ga(Mi), Ma(Fa), Pa(Sol), Dha(La), and Ni (Si)." (*Saṅg. Darp.* 1, 168.)[28]

These notes, classified according to their relative importance, form the different parts of the "person" of the modal scale (mūrch'hanā).

"The note Sa (Do, the tonic) is said to be the soul, Ri(Re) is called the head, Ga (Mi) is the arms, Ma (Fa) the chest, Pa (Sol) the throat, Dha (La) the hips, Ni (Si) the feet. Such are the seven limbs of the modal scale." (*Nāradă Samhitā* 2, 53–54.)[29]

"These notes, as a rule seven, correspond, in the view of Mataṅgă, with the seven basic elements of the physical body, and issue from the seven centres of the subtle body (chakrās)." (Kall. comm. on *Saṅg. Ratn.* 3, 23.)[30]

An interesting way of defining the intervals represented by the svarās or notes of the unaltered (śhuddhă) scale is based on the cry of certain animals.

Most animals have a distinct cry based on two notes. If we consider the lower note as the Sa (Do), the higher note will give us a second, a third, a fourth, etc. This can be very easily verified by observation. Thus:

"Ṣhaḍjă (the octave) is sounded by the peacock; the next note Ṛiṣhabhă (the major second) is uttered by the chātakă bird. The goat bleats Gāndhārā (the minor third),* the heron (krauñchă) cries Madhyamă (the perfect fourth). In the season of flowers, Pañchamă (the perfect fifth) is softly sung by the cuckoo (kokilă). Dhaivată (the natural sixth) is croaked by the frog in the season of rains. At all times, O

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* In terms of the modern one, the ancient natural scale would contain an E flat and a B flat (Ga komală and Ni komală).

Goddess! Niṣhādă (the minor seventh) is trumpeted by the elephant." (Kohală quoted in *Bṛihaddeśhī*, comm. on 63.)[31]

A similar list is given in the *Nāradă Samhitā* (2, 55–56) and a slightly different one in the *Maṇḍukī Śhikṣhā* (1, 9) and in the *Nāradīyă Śhikṣhā* (I, V. 4–5) also reproduced in the *Śhiva tatva Ratnākară.* (VI, 7, 33–35).

The peacock's octave starts from the upper note. Kālidāsă says:

"Both listened to the lovely cry of crested peacocks raising their heads at the sound of the axle of the chariot. In this cry resound two kinds of Ṣhaḍjă svară." (*Raghuvamśhă*, 1, 39.)[32]

We observe that the goat bleats the minor third (Do Mi♭, Sa-Ga komală) that the angry elephant gives a prolonged Si flat (Ni komală) interspersed with repeated lower Do-s (Sa). This shows clearly what was the ancient natural scale.

Readers in India will be familiar with the fifth of the cuckoo.

Some modern writers have suggested that these animal cries have an absolute pitch. So far as I am aware this is not a fact, but the intervals themselves do seem to be invariable.

The Intercalary Notes, Kākalī Ni and Antară Ga

To the seven main notes were added, in ancient music, two accessory notes dividing the major tones Ni, Sa (modern Ni k., Sa; B♭, C) and Ga, Ma (modern Ga k., Ma; E♭, F) into two half-tones. These two intercalary (sādhāraṇă) notes were called Kākalī Ni (the pleasing Si) and Antară Ga (intermediary Mi).

"When two śhrutis (half a tone) from Sa (Do) pass into Ni (Si), this is (called) Kākalī (Si♮, Ni śhuddhă). The same from Ma (Fa) into Ga (Mi) is Antară (Mi♮, Ga śhuddhă)." (Quoted in Simh. comm. on *Saṅg. Ratn.* 1, 3, 40, and in *Śh. tat. Ratn.* VI, 7, 51.)[33]

"The note called Kākalī is obtained by raising Ni (modern Ni k., Si♭) by two śhrutis. The note called Antară is obtained from Ga (modern Ga k. Mi♭) in the same way. They are not properly considered notes (svarăs) because they cannot be taken as tonic (amśhă). So Niṣhādă (Ni k., Mi♭) and Gāndhāră (Ga k., Mi♭) are given prominence over them." (*Datt.* 16–17, also quoted by Simh. comm. on *Saṅg. Ratn.* 1, 3, 56.)[34]

The Śhrutis (*Intervals*)

The names and classification of the intervals, the śhrutis, as given in the ancient and the medieval books, present many problems of interpretation. For this there are the following reasons: (1) at different periods, different notes were taken as the tonic; (2) the more ancient treatises envisaged a descending scale, more recent ones an ascending scale; (3) even the scale considered natural was different at different periods. These difficulties will not surprise us if we remember that not only hundreds but thousands of years may have elapsed between the composition of different treatises.

As we have already seen, a note and its name, depend upon its relation with a fixed sound, the tonic; it can be a fourth, a fifth (a Ma (Fa), a Pa (Sol) etc.) only by relation wtih a basic sound (in modern Indian music, always the Sa—supposed here to correspond with C). Without such a relation an isolated sound cannot properly be called a "note", a svarǎ.

Notes, therefore, depend upon intervals. From the dual point of view of physical relation and intelligible expression, the intervals from which the notes are produced are called "śhrutis", that is "audible",* since it is only through hearing that the idea conveyed by the intervals can be grasped.

The number of possible intervals in relation to a given note is obviously limitless. Yet, the number of intervals used in music is comparatively small. This is due to the phenomenon of "consonance". When the number of vibrations of two or more sounds are related with one another in simple ratios, the sounds seem to merge into one another. This is called consonance and is due to the fact that in such a case many of the "harmonics", which form the upper structure of all sounds, coincide. Consonance gives our sense of hearing a pleasing and restful sensation.

Intervals, however, do not merely produce pleasing or unpleasing sensations. Like words, they also convey to the mind of the hearer distinct and definite expressions.

The Indian theory of music considers that a normal ear can easily perceive sixty-six distinct intervals within the compass of an octave—intervals, that is, which, when played one after another, appear distinctly as separate steps (we shall see later what these intervals are). We find, however, that among these intervals twenty-two are chiefly used in music. These twenty-two are those which represent the simpler ratios with the tonic and which convey to our mind the most distinct and pleasing expressions. In practice, therefore, the śhrutis are said to number twenty-two, though, theoretically, sixty-six are possible. We may say, then, that within one octave we can accurately distinguish twenty-two distinct expressions and sixty-six distinct pitches; beyond this we can naturally conceive of limitless relations of sounds, but we shall never be able to recognize them easily by ear, so they cannot be utilized in music.

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* "It is grasped by the ear, hence it is called 'śhruti' (audible)."[35] " 'Śhru', which means 'hearing', is the root of the word. To this is added the (feminine) suffix 'ktin' (denoting an 'abstract noun'). In this way the term 'śhruti' is derived by experts in words [to represent] the 'means of expression'." (*Bṛihaddeśhī*, comm. on 1, 26.)[36]

Three classes of intervals were already mentioned by Kohală:

"Some experts in the knowledge of intervals say that they number twenty-two. Others speak of sixty-six and some consider them numberless." (Kohală, quoted in *Bṛihaddeśhī*, comm. on 1, 28, and in both Simhabhūpālă's and Kallināthă's comm. on *Saṅg. Ratn.* 1, 3, 8–9 and 10–16.)[37]

The complete scale of the śhrutis is not a practical musical scale which can be directly used in a melodic form. It is simply the assemblage of the different intervals used in different modes, and the standard, therefore, by which they can be compared and studied.

It is impossible to sing the complete scale of the śhrutis accurately in succession (as some singers pretend to do), but they can all be sung with perfect accuracy when they are embodied in expressive scales. Hence Pārśhvadevă says:

"The twenty-two sounds cannot be produced (in succession) by the throat. They should therefore be demonstrated on a stringed instrument." (Attributed to the *Saṅgītă Samayăsāră*, though it is not to be found in the printed edition.)[38]

The Measure of the Śhrutis

According to the explanations given by Bharată in the *Nāṭyă Śhāstră* and by Mataṅgă in his *Bṛihaddeśhī*, the interval, or śhruti, used as the basis of the division of the octave is the comma diesis 81/80, defined as the difference between Pa [modern Dha (A)] considered as the upper fourth (ratio 4/3) from Ri [modern Ga (E)] and Pa as the lower fourth (4/3) from Sa [modern Ri (D)]. This comma is called the "measuring" or "standard" interval.

"The interval produced by the raising or lowering of Pañchamă (modern A, Dha), [which can also be envisaged as a] softening or [a difference in string-] length, is called the "standard interval" (pramāṇă śhruti)." (*Nāṭ. Śh.* 28, 22; and *Bṛihaddeśhī*, comm. on 1, 28.)[39]

It is in fact true that if to the perfect fourth Ri Pa (D G, ancient Sa Ma) of 9 śhrutis we add the minor tone Pa Dha (G A, ancient Ma Pa) of 3 śhrutis, and then the perfect fourth Dha Ri (A D, ancient Pa Sa) of 9 śhrutis, we find the octave from Ri to Ri (D to D) too short:

$$9 \text{ śhrutis} + 3 + 9 = 21; \text{ (i.e. } \frac{4}{3} \times \frac{10}{9} \times \frac{4}{3} = \frac{160}{81}\text{).}$$

The difference between this and the real octave (2/1) is one śhruti or comma (81/80). Thus: $21 + 1 = 22$ or $\frac{160}{81} \times \frac{81}{80} = \frac{2}{1}$

To obtain a perfect octave, then, we must either make the fourth Dha Ri (A D) too large (27/20), or raise the harmonic Dha (A = 5/3) into Dha+ (A+ = 27/16),* changing the minor tone Pa Dha (G A = 10/9) into a major tone Pa Dha+ (G A+ = 9/8). But, in this latter case, the fourth Ga Dha+ (E A+) will become too large. To correct it, we may raise the Ga (E) into Ga+ (E+); but this will destroy its consonance with Ni (B).

In this way we always have to choose between one perfect fourth or the other, the difference involved being in every case the very interval of one comma (81/80) or 5 savarts† which first appears at Dha (A) (ancient Pa).

This "comma of Didymus", as it is also called, was considered by the Greeks, the Arabs and the Hindus as the logical unit for any practical division of the scale. Many modern acousticians agree with this view.

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* See notation-signs, pp. 49–54.

† To represent the proportional ratios of intervals by numbers which can be added together, the easiest method is to take their logarithms. In the most usual system, the octave (2/1) is represented by the log. of 2, i.e. 0.30103, which, multiplied by 1,000 for convenience, gives the division of the octave into 301.03 intervals, or, in practice, 301 intervals which are equal, can be added or subtracted, and are usually called SAVARTS, from the name of the physicist Savart (1791–1841) who advocated this system.

The division of the tempered half-tone into one hundred "cents", sometimes used nowadays, does not allow direct use of logarithm-tables and is besides empirical and musically inaccurate.

The comma (81/80) has this peculiarity, that the differences between important simple intervals can almost always be expressed in terms of it. For example, the difference between the major and minor tone 9/8 and 10/9 (Sa Ri and Ri Ga) is 9/8 × 9/10 = 81/80; the difference between the major half-tone (16/15) and the limma (256/243) is $\frac{16}{15} \times \frac{243}{256} = \frac{81}{80}$; the difference between the two minor thirds (C E♭ +* (Sa Ga k +)† $= \frac{6}{5}$ and C E♭$_n$ (Sa Ga k_n) $= \frac{32}{27}$) is $\frac{6}{5} \times \frac{27}{32} = \frac{81}{80}$; the difference between the harmonic third C E (Sa Ga) = 5/4 and the Pythagorean third C E+ (Sa Ga+) = 81/64 is $\frac{81}{64} \times \frac{4}{5} = \frac{81}{80}$; and so on.

This explains why a scale formed by adding to the twelve notes of the basic scale twelve other notes each raised by one comma, and twelve more each lowered by one comma, will give us practically all the intervals used in music.

The complete division of the octave is, however, attained by adding or subtracting either one or two commas from each of the twelve notes of the basic chromatic scale.‡ This gives us a series of 53 intervals, which cannot all be used in modal scales though they may come into use through modulations (changes of tonic) or in certain forms of polyphony. If we further divide the disjunction which appears at each half-tone of this scale so as to form quarter tones, we obtain the division of the octave (Sa to upper Sa) into 65 intervals—that is, counting the note that forms the octave itself, the scale of sixty-six intervals or shrutis spoken of by Kohală.

It should be noted that this scale makes use only of two kinds of intervals—commas of 5 savarts and disjunctions of 8 savarts. This is, in fact, besides the Pythagorean division into seven notes, the only possible complete division of the octave which uses only two sorts of intervals and which respects the fundamental consonances (fourth, fifth, etc.).

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* See the tuning-signs, pp. 49–54.

† k. means "komală" (flat) and t. "tīvră" (sharp).

‡ See p. 50.

All other divisions of the octave are either irregular or, as is the case with all tempered scales, never give perfect consonances.

The Notation of the Śhrutis[*]

To proceed further with the theory of the śhrutis we require an accurate and simple way of writing down exact intervals. The following method of classification has been adopted here as the most simple and convenient.

In order to write the sixty-six intervals of the complete scale, we shall use conventional signs placed beside the notes within the frame of the harmonic form of the chromatic scale,[†] which is the scale of modal music and which allows only one sort of accidental (either flat or sharp) for each note. This applies to both the European staff and the Indian syllabic notations. Thus, the sign – – after the note means that it is lowered by two commas; the sign – means that the note is lowered by one comma; the sign + means that the note is raised by one comma, the sign + + that the note is raised by two commas. The sign *n* (natural) indicates the more usual note, neither raised nor lowered.

In the following tables we shall leave aside the quarter-tones that divide the disjunctions into two approximately equal parts, since they are never in practice used in Indian music.

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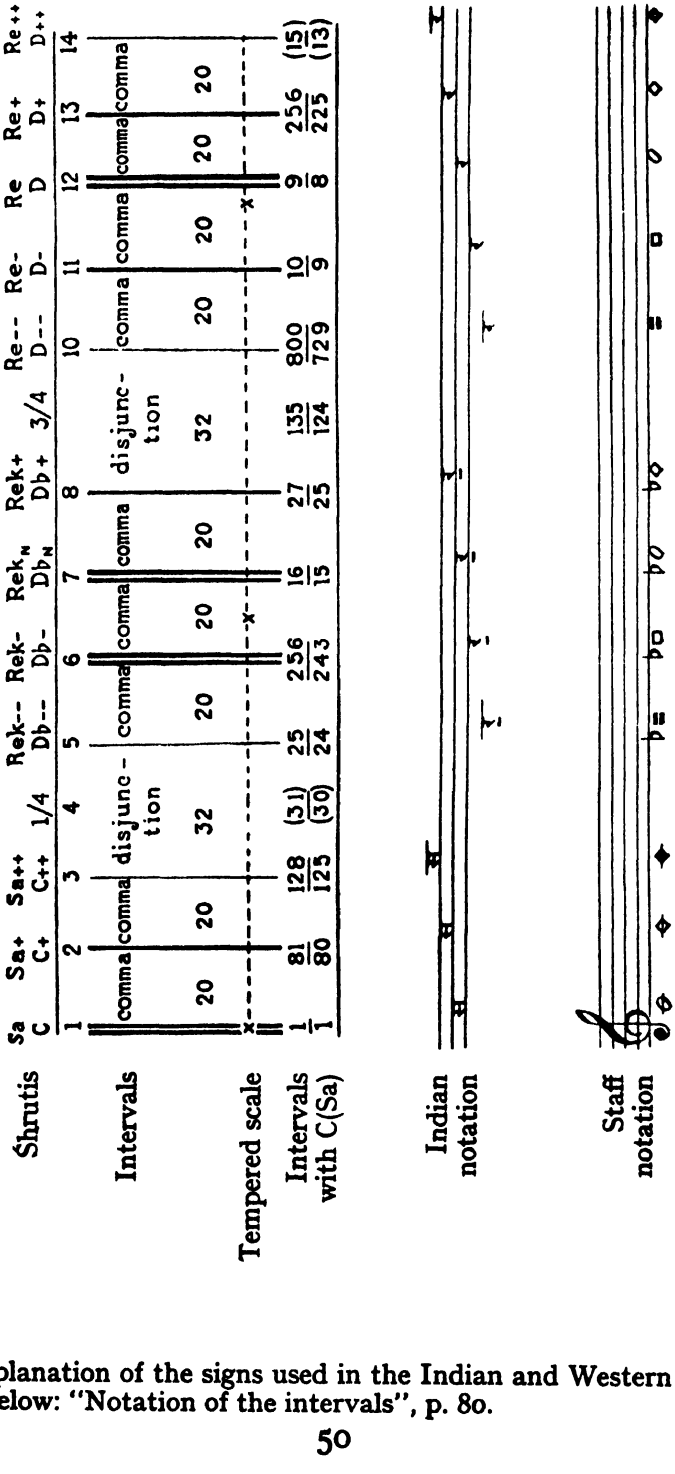
[*] For transcription of the śhrutis in the European staff and Indian syllabic notations, see below: Notation of the intervals, p. 80.

[†] See below, the section on "the Scale", p. 72.

*The Sixty-six Śhrutis**



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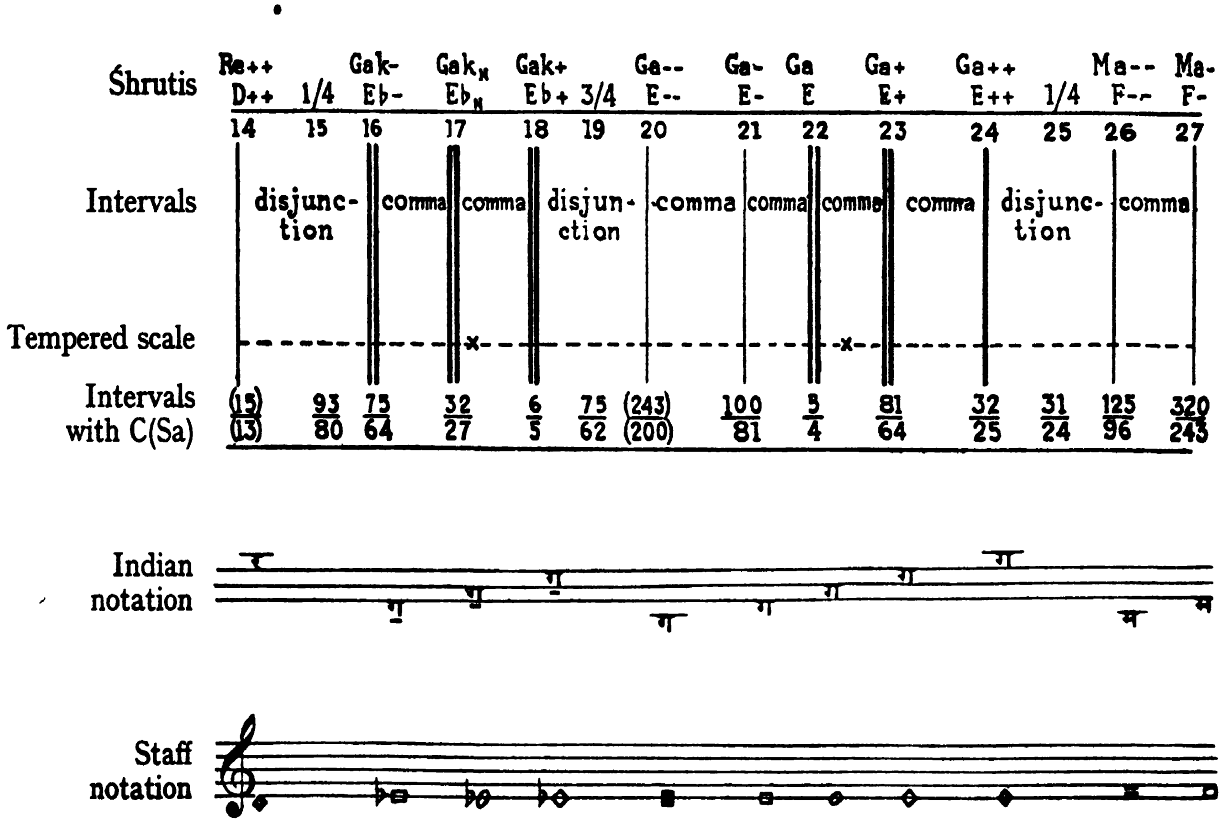
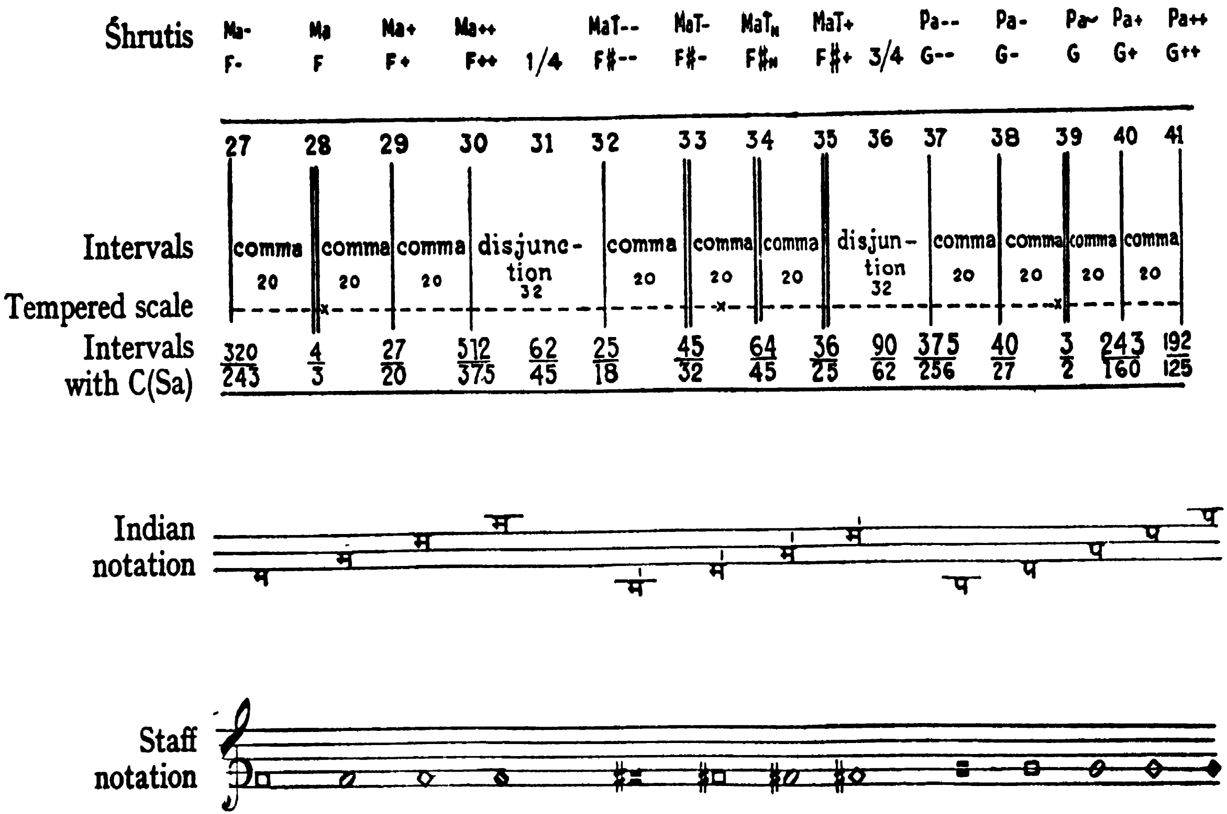
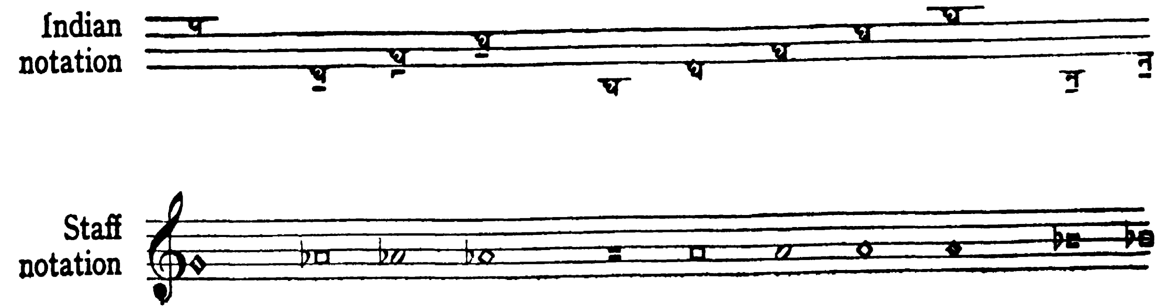
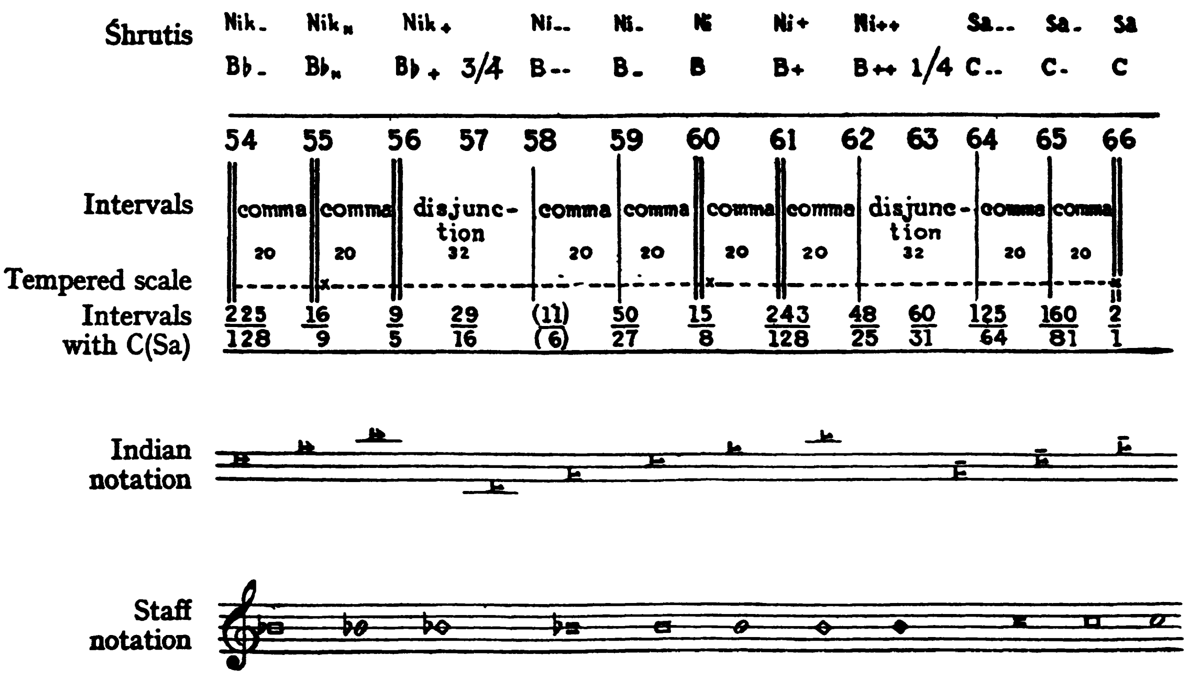
* For explanation of the signs used in the Indian and Western staff notations, see below: "Notation of the intervals", p. 80.


Śhrutis
Re++ D++
1/4
Gak- Eb-
Gak$_N$ Eb$_N$
Gak+ Eb+
3/4
Ga-- E--
Ga- E-
Ga E
Ga+ E+
Ga++ E++
1/4
Ma-- F--
Ma- F-
14
15
16
17
18
19
20
21
22
23
24
25
26
27
Intervals
disjunction
comma
comma
disjunction
comma
comma
comma
comma
disjunction
comma
Tempered scale
x
x
Intervals with C(Sa)
(15)/(13)
93/80
75/64
32/27
6/5
75/62
(243)/(200)
100/81
5/4
81/64
32/25
31/24
125/96
320/243
Indian notation
रे
ग
ग
ग
ग
ग
ग
ग
ग
म
म
Staff notation


Śhrutis
Ma- F-
Ma F
Ma+ F+
Ma++ F++
1/4
MaT-- F♯--
MaT- F♯-
MaT$_N$ F♯$_N$
MaT+ F♯+
3/4
Pa-- G--
Pa- G-
Pa~ G
Pa+ G+
Pa++ G++
27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
Intervals
comma 20
comma 20
comma 20
disjunction 32
comma 20
comma 20
comma 20
disjunction 32
comma 20
comma 20
comma 20
comma 20
Tempered scale
Intervals with C(Sa)
320/243
4/3
27/20
512/375
62/45
25/18
45/32
64/45
36/25
90/62
375/256
40/27
3/2
243/160
192/125
Indian notation
म म म म म म म म प प प प प
Staff notation

Śhrutis	Pa++		Dhak-	Dhak$_N$	Dhak+		Dha--	Dha-	Dha	Dha+	Dha++		Nik--	Nik-
	G++	1/4	A♭-	A♭$_N$	A♭+	3/4	A--	A-	A	A+	A++	1/4	B♭--	B♭-
	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Intervals	disjunction 32		comma 20	comma 20	disjunction 32		comma 20	comma 20	comma 20	comma 20	disjunction 32		comma 20	
Tempered scale			·	x					x					
Intervals with C(Sa)	$\frac{192}{125}$	$\frac{31}{20}$	$\frac{25}{16}$	$\frac{128}{81}$	$\frac{8}{5}$	$\frac{50}{31}$	$\frac{81}{50}$	$\frac{400}{243}$	$\frac{5}{3}$	$\frac{27}{16}$	$\frac{128}{75}$	$\frac{31}{18}$	$\frac{125}{72}$	$\frac{225}{120}$

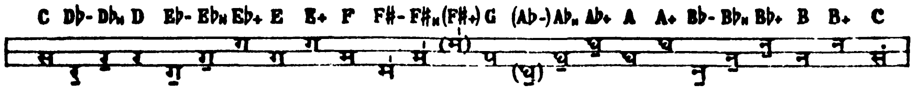




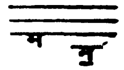
Shrutis	Nik-	Nik×	Nik+		Ni--	Ni-	Ni	Ni+	Ni++		Sa--	Sa-	Sa
	B♭-	B♭×	B♭+	3/4	B--	B-	B	B+	B++	1/4	C--	C-	C
	54	55	56	57	58	59	60	61	62	63	64	65	66
Intervals	comma 20	comma 20	disjunction 32		comma 20	comma 20	comma 20	comma 20	disjunction 32		comma 20	comma 20	
Tempered scale		x					x						x
Intervals with C(Sa)	225/128	16/9	9/5	29/16	(11)/(6)	50/27	15/8	243/128	48/25	60/31	125/64	160/81	2/1

NOTE. The comma is equal to five savarts (or 20 cents); the disjunction equals eight savarts (32 cents); the tempered half-tone twenty-five savarts (100 cents).

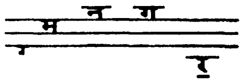
Of these theoretical intervals many, in practice, are very seldom used. The twenty-two (or twenty-four) most prominent intervals, which correspond to obviously distinct expressions and which are used in the teaching of modal music, are usually considered to be the following:


C D♭- D♭n D E♭- E♭n E♭+ E E+ F F♯- F♯n (F♯+) G (A♭-) A♭n A♭+ A A+ B♭- B♭n B♭+ B B+ C

On no grounds can these twenty-two divisions be considered equal. They refer only to twenty-two prominent intervals chosen out of the possible fifty-three (or sixty-six). In modal music a few other intervals are used, though seldom. They are the rare F— and B♭— —



and the still more rarely used D—, F+, B++, E++, D♭— —



The remaining divisions, necessary only when the tonic is changed, are not considered in modal practice.

As we have already explained, if we add or subtract one comma to or from each of the twelve notes of the fundamental Pythagorean chromatic scale* we get a scale of thirty-six notes which contains practically all the intervals that are used in any form of music.

In this scale each of the twelve notes thus has three positions —low, middle and high. This mode of division of the scale seems to have been used by the celebrated Tumburu† who expresses the strident character of all the raised notes and the mellowness of the lowered ones by connecting them with the

* The Pythagorean chromatic scale has only major tones and limmas. Its third, sixth and seventh are therefore higher by one comma than the same notes of the harmonic scale. The Pythagorean scale is written in our notation:

C	D	E+	F	G	A+	B+	C
Sa	Ri	Ga+	Ma	Pa	Dha+	Ni+	Sa.

The intermediary notes are:

D♭$_n$	E♭$_n$	F♯$_n$	A♭$_n$	B♭$_n$
Ri k$_n$	Ga k$_n$	Ma t$_n$	Dha k$_n$	Ni k$_n$

† A celestial musician, considered the originator of one of the chief ancient systems of music. He wrote a treatise now lost.

four humours of the body whose relative predominance is said to bring similar tendencies. He says:

"A sound that is high is harsh (piercing). The wise know it to be born from wind.

"A low sound, deep and mellow, should be known as born from bile.

"The attractive (perfect) sound is born from lymph. It is sweet and tender.

"That which has the qualities of all three (the sound with vibrato) is known to be born from semen." (Attributed to Tumburu by Kallināthă, comm. on *Saṅg. Ratn.* 1, 3, 10–16; and to Chatură in *Bṛihaddeśhī* comm. on 27.)[40]

The Expression of the Śhrutis

As we have already seen, the division of the octave into sixty-six intervals is an acoustic division. Although we can clearly perceive the differences in pitch of different intervals and rapidly train our ear to recognize them, only a certain number will correspond with such expressions as are generally used in music. These expressions of the intervals have been carefully classified by ancient writers. Each śhruti was given a name depicting its character. In the system of Pārśhvadevă, these names were even different for each octave. These expressions were further classified into five main groups or *Jātis* called "moderate, keen, large, tender, and compassionate". We shall see later what these jātis are.

"Dīptā (keen), Āyatā (large), Karuṇā (compassionate), Mṛidu (tender), Madhyā (moderate), these are the five kinds (Jātis) of śhrutis that are found in the notes." (*Saṅg. Ratn.* 1, 3, 27–28.)[41]

Because of the confusion that has resulted from changes in scale and in tonic the exact interpretation of the ancient śhrutis presents a number of problems which we shall not attempt to discuss here.

The only safe way to interpret the ancient śhrutis is to start from the actual expression of the intervals as they are found to exist in present-day musical practice. The notation of these expressions given in the following list has been worked out by careful measuring of the intervals used by musicians playing different rāgăs and by noting the expression each particular note conveyed to the musician and to his audience. It was found that the same intervals in the most different rāgăs always, in themselves, produced the same kind of expression. The scale we give here is only the result of such experiments and may therefore be subject to improvement.

In the following table we also compare the śhrutis as they are given by Śhārṅgadevă with the experimental ones. A few slight differences remain to be clarified.

There is some difficulty in ascertaining which of the śhrutis of Śhārṅgadevă really was the tonic. This has led to very divergent interpretations. The three main ones start the scale from the śhrutis Chhandovatī, Kṣhobhiṇī or even Ramyā—corresponding with Dha (A), which is said to have been the ancient tonic of Nāradă. The *Svară mela Kalānidhi* (1549 A.D.) takes Chhandovatī as Sa (Tonic) but considers that "Prasūnā", Nāradă's first śhruti, corresponds with Kṣhobhiṇī. On the other hand, Govindă in his *Saṅgītă Śhāstră Saṅkṣhepă* (c. eighteenth century) places the tonic Sa on Kṣhobhiṇī.

The śhrutis are given by Śhārṅgadevă as follows:

"Tīvrā, Kumudvatī, Mandā, Chhandovatī come within Ṣhaḍjă;

Dayāvatī, Rañjanī and Raktikā dwell in Ṛiṣhabhă,

Raudrī and Krodhā in Gāndhāră,

while the śhrutis Vajrikā, Prasāriṇī, Prīti and Mārjanī have their place in Madhyamă.

Kṣhitiḥ, Raktā, Sandīpanī and Ālāpinī are in Pañchamă;

Madantī, Rohiṇī, Ramyā shelter in Dhaivată;

both Ugrā and Kṣhobhiṇī rest in Niṣhādă." (*Saṅg. Ratn.* I, 3, 35–39).[42]

I formerly followed the often admitted interpretation that starts the scale from Kṣhobhiṇī, but closer study of the expressions given by Śhārṅgadevă seems to show beyond doubt that his scale started from Chhandovatī, as seen in the following tables.

THE SCALE OF THE ŚHRUTIS

				Śhārṅgadevă Śhrutis	
Note	*Actual expression*	*Ratio from C*		(*Name of śhruti*)	(*Type of expression—Jātis*)
Sa(C)	(*base*)	1/1	*Sa*	4 *Chhandovatī* (measuring)	Madhyā (moderate)
Sa+(C+)	—	81/80			
Ri k— — ($D\flat$— —)	*sad, pathetic.*	*25/24*		5 Dayāvatī (compassionate)	Karuṇā (compassion)
Ri k— ($D\flat$—)	tender, at peace.	256/243			
Ri k_n ($D\flat_n$)	loving, calm.	16/15		6 Rañjanī (charming)	Madhyā (moderate)
Ri k+ ($D\flat$+)	enterprising.	27/25			
Ri— (D—)	anxious, weak.	10/9		—	
Ri_n (D_n)	*strong, confident.*	*9/8*	*Ri*	7 *Ratikā* (sensuous)	Mṛiduḥ (tender)
Ri+ (D+)	fierce.	256/225		8 Raudrī (fierce)	Dīptā (keen)
Ga k— ($E\flat$—)	sad.	75/64			
Ga k_n ($E\flat_n$)	*loving.*	*32/27*	*Ga*	9 *Krodhā* (passionate)	Āyatā (large)
Ga k+ ($E\flat$+)	passionate.	6/5		10 Vajrikā (thundering)	Dīptā (keen)
Ga_n (E_n)	*calm, pleasing.*	*5/4*	(*Antară Ga*)	11 *Prasāriṇī* (pervasive)	Āyatā (large)

THE SCALE OF THE ŚHRUTIS (*contd.*)

			Śhārṅgadevă Śhrutis	
Note	*Actual expression*	*Ratio from C*	(*Name of śhruti*)	(*type of expression—Jātis*)
Ga+ (E+)	awake, lively.	81/64	12 Prītiḥ (love)	Mriduḥ (tender)
Ga++ (E++)	hard, indifferent.	32/25		
Ma— (F—)	doubt.	320/243		
Ma$_n$ (*F*$_n$)	*moonlight, peace.*	*4/3*	*Ma* 13 *Mārjanī* (purifying)	Madhyā (moderate)
Ma+ (F+)	intense.	27/20		
Ma t— — (*F♯— —*)	*intense grief.*	*25/18*	14 Kṣhitiḥ (loss)	Mriduḥ (tender)
Ma t— (*F♯—*)	uncertain, doubtful.	45/32		
Ma t$_n$ (F♯$_n$)	intense, active.	64/45	15 Raktā (red)	Madhyā (moderate)
Ma t+ (F♯+)	acute, interrogative.	36/25	16 Sandīpanī (inflaming)	Āyatā (large)
(Pa—) (G—)	inexpressive, self-contradictory.	40/27		
Pa$_n$ (*G*$_n$)	*sunlight, joyful.*	*3/2*	*Pa* 17 *Ālāpinī* (conversing)	Karuṇā (compassion)
(Pa+) (G+)	confused, self-contradictory.	243/160		
Dha k— (A♭—)	deep sorrow.	25/16	18 Madantī (maddening)	Karuṇā (compassion)

THE SCALE OF THE ŚHRUTIS (*contd.*)

				Śhārṅgadevā Śhrutis	
Note	*Actual expression*	*Ratio from C*		(*Name of śhruti*)	(*type of expression—Jātis*)
Dha k$_n$ (A$\flat_n$)	tender.	128/81		19 Rohiṇī (adolescent)	Āyatā (large)
Dha k+ (A$\flat$+)	loving, enterprising.	8/5			
Dha— (A—)	*uncertainty.*	*400/243*			
Dha$_n$ (A$_n$)	*soft, calm.*	*5/3*	*Dha*	20 *Ramyā* (restful)	Madhyā (moderate)
Dha+ (A+)	restless, playful.	27/16		21 Ugrā (fearful)	Dīptā (keen)
(Dha++) (A++)	hard, active.	128/75			
Ni k— (B$\flat$—)	helpless, subdued.	225/128			
Ni k$_n$ (B$\flat_n$)	*beauty, love.*	*16/9*	*Ni*	22 *Kṣhobhiṇī* (excited)	Madhyā (moderate)
Ni k+ (B$\flat$+)	desire, anxiety.	9/5		1 Tīvrā (sharp)	Dīptā (keen)
(Ni— —) (B— —)	*(doubt).*	*729/400*			
(Ni—) (B—)	*anguish, depression.*	*50/27*			
Ni$_n$ (B$_n$)	*soft, voluptuous.*	*15/8*	(*Kākalī Ni*)	2 *Kumudvatī* (lotus-like)	Āyatā (large)
Ni+ (B+)	strong, sensuous.	243/128		3 Mandā (low)	Mṛiduḥ (tender)
Ni++ (B++)	selfish, eager.	48/25			
Sa— (C—)	—	160/81			
Sa (C)	*(base)*	1/1	*Sa*	4 *Chhandovatī* (measuring)	Madhyā (moderate)

The Theory of the Classes of Intervals (*Śhruti-jātis*)

As we have explained in another work,* the scale of the śhrutis is composed of several series of fifths related by harmonic thirds. Starting from C(Sa), we build five successive ascending fifths and five successive descending fifths (we shall see later why there can be only five). This gives us the series of intervals generally known as Pythagorean.

The five ascending fifths are: G (Pa), D (Ri), A+ (Dha+), E+ (Ga+), B+ (Ni+).

The five descending fifths are: F (Ma), $B\flat_n$ (Ni k_n), $E\flat_n$ (Ga k_n), $A\flat_n$ (Dha k_n), D♭— (Ri k—).

If now, starting again from C, we descend by an harmonic minor third (6/5), this gives us the A_n (Dha_n) which forms a sixth (5/3) with the lower C, and which is lower by one comma (81/80) than the Pythagorean sixth A+ (Dha+) = 27/16 which we obtained before.

If we build up ascending and descending fifths starting from this harmonic A_n (Dha_n), they will all naturally fall one comma below those of the basic series. This new series gives us: E (Ga), B (Ni), F♯— (Ma t—), D♭— (Ri k—), etc.

If again we base an harmonic minor third on A_n (Dha_n), we obtain F♯— — (Ma t— —) = 25/18, basis of a series of fifths two commas below those of the basic series, thus: D♭— — (Ri k— —), A♭— (Dha k—), E♭— (Ga k—), B♭— (Ni k—).

And if, starting again from C (Sa), we ascend by an harmonic minor third, we obtain the high E♭+ (Ga k+) 6/5, the basis of a series of fifths all one comma higher than those of the basic series, thus: A♭+ (Dha k+), $D\flat_n$ (Ri k_n), $F\sharp_n$ (Ma t_n), B+ Ni+).

Similarly, an ascending harmonic minor third from E♭+ (Ga k+) gives F♯+ (Ma t+) 36/25, the base of a series of fifths two commas higher than those of the basic series, thus: B++ (Ni++), E++ (Ga++), A++ (Dha++), D+ (Ri+).

We shall see more clearly below that each of these series is based upon a certain *type* of ratio, and that the notes of each series correspond with a certain type of emotion. There is, then, a direct relation between intervals, determined by strictly physical laws, and the emotions they arouse or express. This fact is the very ground of music. Once we know

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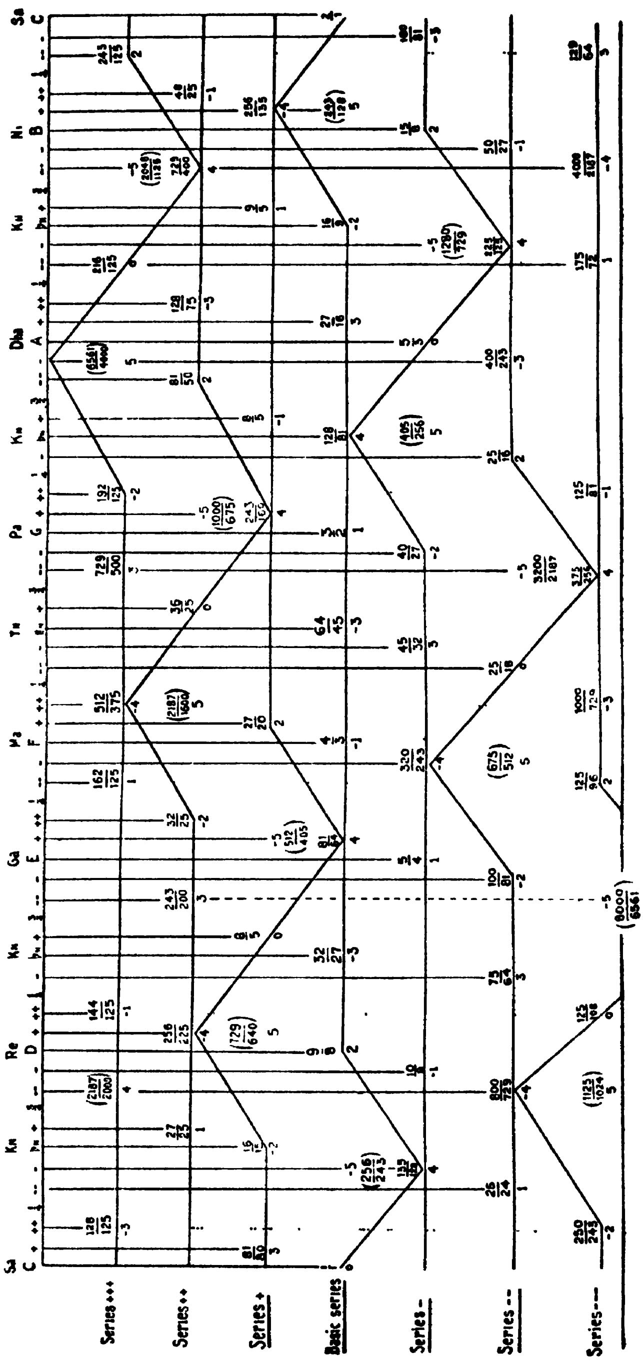
* *Introduction to the Study of Musical Scales*, pp. 232–235.

THE SERIES OF FIFTHS AND THE 66 ŚHRUTIS



the type of ratio that corresponds with certain emotion, we can tell at once what emotion a given interval must express by merely looking at the ratio with which it corresponds: we do not need to hear it.

Starting from Sa (C) $\frac{1}{1}$ which is strictly neutral, the ascending fifths are all of the form $3/2$, i.e. ratios formed with 3 and its multiples divided by multiples of 2. Thus: G (Pa) $= 3/2$, D (Ri) $= 9/8 = 3^2/2^3$, A+ (Dha+) $= 27/16 = 3^3/2^4$, E+ (Ga+) $= 81/64 = 3^4/2^6$, B+ (Ni+) $= 243/128 = 3^5/2^7$.

These intervals are said to represent the "active principle": they all express sunshine, strength and joy.

If, in the same series, we take the descending fifths from Sa (C), these are all of the form $2/3$. Thus F (Ma) $= 4/3 = 2^2/3$, $B\flat_n$ (Ni k_n) $= 16/9 = 2^4/3^2$, $E\flat_n$ (Ga k_n) $= 32/27 = 2^5/3^3$, $A\flat_n$ (Dha k_n) $= 128/81 = 2^7/3^4$, D♭– (Ri k–) $= 256/243 = 2^8/3^5$.

These intervals represent the "passive principle": they all express moonlight, beauty, peace.

In this basic series the expressions remain of a general character: they are said to be of the cosmic order. Their ratios never use a prime number higher than three.

In the next series a new element appears, the prime number 5. And we shall discover that whenever 5 appears as a constituent of the numerator, the interval whose ratio is so expressed conveys tenderness (that is, passive reaction to the outer world). And whenever it appears as a constituent of the denominator, the interval whose ratio is so expressed conveys passion (active reaction to the outer world).

The basic interval of the series – (minus) is A (Dha) $5/3$, which expresses sensitiveness, emotion. The ascending fifths will be E_n (Ga_n) $5/4 = 5/2^2$, B_n (Ni_n) $15/8 = 5 \times 3/2^3$, F♯– (Ma t–) $45/32 = 5 \times 3^2/2^5$, D♭– (Ri k–) $135/128 = 5 \times 3^3/2^7$. These will all show the same character, though the growing influence of $3/2$ will bring in its own element of activity.

The descending fifths [D– (Ri–) $10/9 = 5 \times 2/3^2$, G– (Pa–) $40/27 = 5 \times 2^3/3^3$, C– (Sa–) $160/81 = 5 \times 2^5/3^4$, F– (Ma–) $320/243 = 5 \times 2^6/3^5$] enhance the already receptive, sensitive character of the series –; in fact the passive character of the descending fifth, when added to that of the number 5 in the numerator, gives intervals so exaggeratedly passive and characterless that they are rarely used in music.

The basic interval of the series + (plus) is E♭+ (Ga k+) $6/5 = 2 \times 3/5$ which expresses passion, desire. The ascending fifths built upon it add their activity to the active character produced by the number 5 in the denominator and thus create exaggeratedly acute intervals which, except for the first one, where the element 2 does not appear, are rarely used in music
[B♭+ (Ni k+) $9/5 = 3^2/5$, F+ (Ma+) $27/20 = 3^3/5 \times 2^2$, C+ (Sa+) $81/80 = 3^4/5 \times 2^4$, G+ (Pa+) $243/160 = 3^5/5 \times 2^5$].

The descending series, on the other hand, combining passion $\left(\frac{n}{5}\right)$ and beauty (descending 5ths), is lively and charming. Its intervals are A♭+ (Dha k+) $8/5 = 2^3/5$, D♭$_n$ (Ri k$_n$) $16/15 = 2^4/5 \times 3$, F♯$_n$ (Ma t$_n$) $64/45 = 2^6/5 \times 3^2$, B+ (Ni+) $256/135 = 2^8/5 \times 3^3$.

We see that the fifth ascending fifth of the basic series and the fourth descending fifth of the series + give two intervals almost identical: B+(Ni+) 243/128 and B+ (Ni+) 256/125. The first is of 278.14 savarts, the second of 277.91. The difference is 0.23 of a savart, that is less than 1/20th of a comma or 1/200th of a tone—a very small quantity indeed. Any further fifths in these two series will therefore be practically identical. The same applies to the fifth descending fifth of the basic series, D♭— (Ri k—) 256/243, and the fourth ascending fifth of the series —, D♭— (Ri k—) 135/128. The same happens, in fact, with every series, so that the number of possible distinct intervals in each series can never be higher than five.

If we now proceed with the series two commas above and two commas below the basic series, we have the series + + characterized by $\frac{n}{25}$, i.e. 5^2 in the denominator. This expresses harshness, brutality, insensitiveness; while the series — —, characterized by $\frac{25}{n}$, or 5^2 in the numerator expresses intense depression or sadness.

The intervals of the series + + are not as a rule employed because the kind of sentiments they express are not those we

THE CLASSES OF ŚHRUTIS (ŚHRUTI-JĀTIS)

BASIC SERIES (COSMIC)

O = Sa $\frac{1}{1}$ centre, Earth, etc (yellow)

Descending fifths (Passive $\frac{2}{3}$)

-1	F (Ma)	$4/3 = 2^2/3$	Moonlight peace, passivity (white)
-2	B♭=(Ni K=)	$16/9 = 2^4/3^2$	beauty, lovableness
-3	E♭=(Ga K=)	$32/27 = 2^5/3^3$	tender, loving, expectant
-4	A♭=(Dha K=)	$128/81 = 2^7/3^4$	submissive, passive, expectant
(-5	D♭-(Re K-)	$256/243 = 2^8/3^5$	tenderness, charm, devotion)

Ascending fifths (active $\frac{3}{2}$)

1	G (Pa)	$3/2$	Sunshine, joy, activity (red)
2	D (Re)	$9/8 = 3^2/2^3$	strength, virility.
3	A+(Dha+)	$27/16 = 3^3/2^4$	confident, joyful, lively.
4	E+(Ga+)	$81/64 = 3^4/2^6$	independent, active, contented
(5	B+(Ni+)	$243/128 = 3^5/2^7$	boldness, desire, pleasure)

SERIES – (passive, emotion, enjoyment $\frac{5}{n}$)

O = A (Dha) $\frac{5}{3}$ enjoyment, satisfaction

Descending fifths

-1	D-(Re)	$10/9 = 5\times2/3^2$	Weak, anxious
-2	G-(Pa-)	$40/27 = 5\times2^3/3^3$	
-3	C-(Sa-)	$\frac{160}{81} = \frac{5\times2^5}{3^4}$	
-4	F-(Ma-)	$\frac{320}{243} = \frac{5\times2^6}{3^5}$	
(-5	B♭-(Ni K-)	$\frac{1280}{729} = \frac{5\times2^8}{3^6}$	

Ascending fifths

1	E (Ga)	$5/4 = 5/2^2$	soft pleasing
2	B (Ni)	$15/8 = 5\times3/2^3$	soft, voluptuous
3	F♯-(Ma T)	$45/32 = \frac{5\times3^2}{2^5}$	attractive, ambiguous
4	D♭-(Re K)	$\frac{135}{128} = \frac{5\times3^3}{2^7}$	tender charming, devoted
(5	A♭=(Dha K)	$\frac{405}{256} = \frac{5\times3^4}{2^8}$	

SERIES + (active emotion, passion $\frac{n}{5}$)

O = E♭+ (Ga K+) $6/5 = \frac{2\times3}{5}$ passion, desire

Descending fifths

-1	A♭+(Dha K+)	$8/5 = 2^3/5$	loving passionate
-2	D♭=(Re K=)	$16/15 = 2^4/5\times3$	loving, confident
-3	F♯=(Ma T=)	$\frac{64}{45} = 2^6/5\times3^2$	active promising, intense
-4	B+(Ni+)	$\frac{256}{135} = 2^8/5\times3^3$	boldness, desire pleasure
(-5	E+(Ga+)	$\frac{512}{375} = 2^9/5^3\times3$	

Ascending fifths

1	B♭+(Ni K+)	$9/5 = 3^2/5$	passionate, intense, desirous
2	F+(Ma+)	$27/20 = 3^3/5\times2^2$	intense
3	C+(Sa+)	$81/80 = 3^4/5\times2^4$	
4	G+(Pa+)	$\frac{243}{160} = 3^5/5\times2^5$	
(5	D+(Re+)	$\frac{729}{640} = 3^6/5\times2^7$	

SERIES -- (Depression, sadness $\frac{25}{n}$)

O = F♯-- (Ma T--) $25/18 = 5^2/3^2\times2$ distressful

Descending fifths

-1	B-(Ni-)	$\frac{50}{27} = \frac{5^2\times2}{3^3}$	
-2	E-(Ga-)	$\frac{100}{81} = \frac{5^2\times2^2}{3^4}$	
-3	A-(Dha-)	$\frac{400}{243} = \frac{5^2\times2^4}{3^5}$	
-4	D--(Re--)	$\frac{800}{729} = \frac{5^2\times2^5}{3^6}$	
(-5	G--(Pa--)	$\frac{3200}{2187} = \frac{5^2\times2^7}{3^7}$	

Ascending fifths

1	D♭-(Re K-)	$\frac{25}{24} = \frac{5^2}{3\times2^3}$	intense sadness
2	A♭-(Dha K-)	$\frac{25}{16} = \frac{5^2}{2^4}$	despair, intense sadness
3	E♭-(Ga K-)	$\frac{75}{64} = \frac{5^2\times3}{2^6}$	sadness, melancholy
4	B♭-(Ni K-)	$\frac{225}{128} = \frac{5^2\times3^2}{2^7}$	helpless, subdued
5	F-(Ma-)	$\frac{675}{512} = \frac{5^2\times3^3}{2^9}$	doubt, melancholy

SERIES ++ (Harshness, insensibility $\frac{n}{25}$)

O = F♯+ (Ma T+) $36/25 = 3^2\times2^2/5^2$ harsh, indifferent

Descending fifths

-1	B++(Ni++)	$\frac{48}{25} = \frac{3\times2^4}{5^2}$	selfish, hard
-2	E++(Ga++)	$\frac{32}{25} = \frac{2^5}{5^2}$	hard, indifferent
-3	A++(Dha++)	$\frac{128}{75} = \frac{2^7}{5^2\times3}$	unconscious, insentient
-4	D+(Re+)	$\frac{256}{225} = \frac{2^8}{5^2\times3^2}$	insentient
(-5	G+(Pa+)	$\frac{1000}{675} = \frac{2^{10}}{5^2\times3^3}$	

Ascending fifths

1	D♭+(Re K+)	$\frac{27}{25} = \frac{3^3}{5^2}$	harsh, enterprising
2	A--(Dha--)	$\frac{81}{50} = \frac{3^4}{5^2\times2}$	
3	E--(Ga--)	$\frac{243}{200} = \frac{3^5}{5^2\times2^3}$	
4	B--(Ni--)	$\frac{729}{400} = \frac{3^6}{5^2\times2^4}$	
5	F++(Ma++)	$\frac{2187}{1600} = \frac{3^7}{5^2\times2^6}$	

usually ask from music. In any case, as it was in the series +, only the descending fifths convey clear meaning, for the ascending fifths create confusion by superimposing their active character upon the already extreme activity of the series. This series thus gives us F♯+ (Ma t+) $36/25 = 3^2 \times 2^2/5^2$, B++ (Ni++) $48/25 = 3 \times 2^4/5^2$, E++ (Ga++) $32/25 = 2^5/5^2$, A++ (Dha++) $128/75 = 2^7/5^2 \times 3$, D+ (Ri+) $256/225 = 2^8/5^2 \times 3^2$.

The intervals of the series − −, on the other hand, are among the most beautiful in music and deeply move the heart. Only the ascending fifths are used, for, as it was in the series —, the descending fifths lead to confused meanings by superimposing their passive character upon that of the series. We thus have F♯ − − (Ma t − −) $25/18 = 5^2/3^2 \times 2$, D♭ − − (Ri k − −) $25/24 = 5^2/3 \times 2^3$, A♭− (Dha k−) $25/16 = 5^2/2^4$, E♭− (Ga k−) $75/64 = 5^2 \times 3/2^6$, B♭− (Ni k−) $225/128 = 5^2 \times 3^2/2^7$.

By comparing their ratios we can at once precisely analyse the subtle differences of expression between these intervals. We can see for example that A♭− (Dha k−) $5^2/2^4$ will be pure, absolute, immense sadness, while E♭− (Ga k−) $5^2 \times 3/2^6$ will temper this sadness by some sunshine (3/2), some ray of hope.

If we add a few elements of either a series + + + or a series − − − which are not used in musical practice, we can complete the cycle of intervals, leaving no room for any new śhruti.

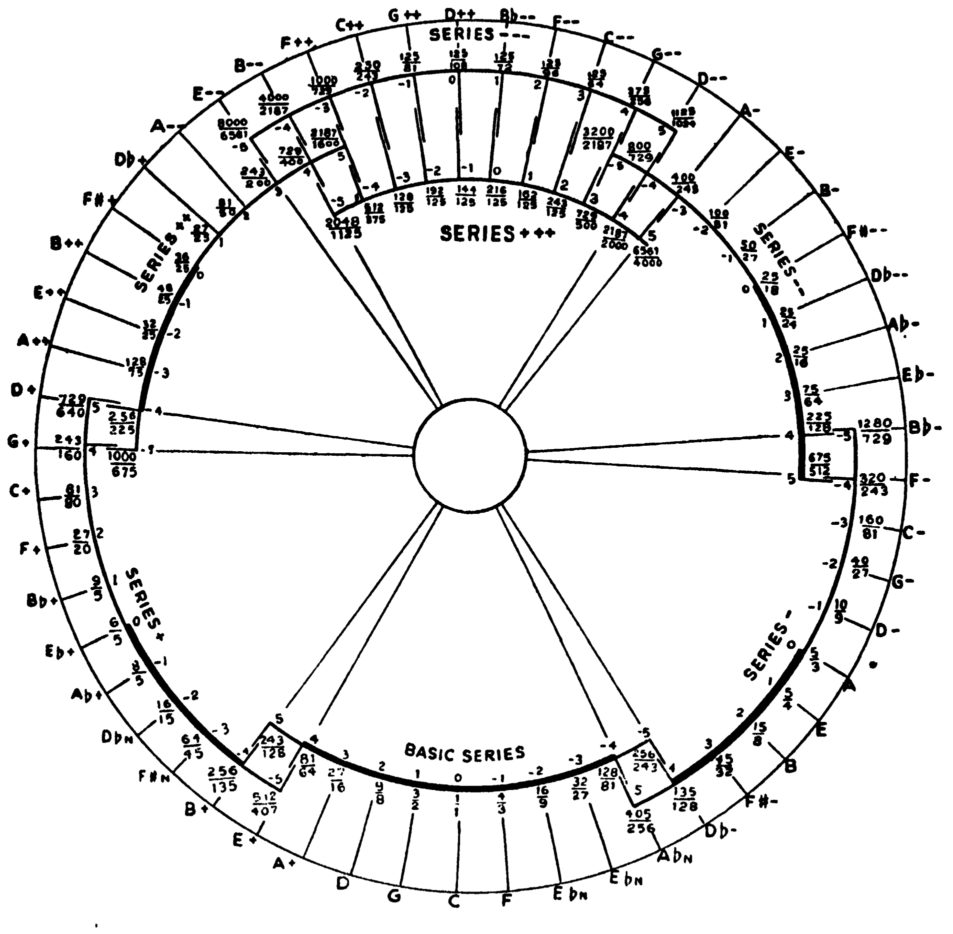
Here too it should be noted that whenever a common interval appears in two of the series, the constituents of the ratios which form the two almost identical intervals come to represent the same expression through two different channels. For example, if we compare the B+ 243/128 of the basic series and the B+ 256/135 of the series +, we should first note that $256 = 2^8 = 128 \times 2$, $243 = 3^5$, $135 = 5 \times 3^3$.

In one case we have $243/128 = 3^5/2^7$, that is the fifth degree (the most materialized degree) of 3/2 joy, activity.

In the other case $256/135 = 2^8/5 \times 3^3$, that is the expression of $2^3/5$ (A♭+ i.e. passion, love), sobered by the expression of $2^5/3^3$ (E♭$_{\text{n}}$), tenderness, expectancy.

Both lead to the same expression: boldness, desire, pleasure.

THE CYCLE OF THE ŚHRUTIS



A thicker line shows the groups of intervals normally used in modal music.

It will be observed that the intervals of two series corresponding with the same note show peculiar analogies. The denominator of the lower series (multiplied by 2) usually forms the numerator of the corresponding interval in the higher series.

The corresponding intervals in the series + and −, + + and − −, etc., are always the exact inverted form (multiplied or divided by 2) of one another, and thus give opposite expressions.

The peculiar leap of the fifth element of each series into an interval belonging to a higher or lower series has many implications in the philosophy of sound and of numbers, as well as special applications in the domain of physics, with which we hope to deal in some other work.

The cycle of intervals gives us a division of the octave into fifty-three. This exactly corresponds with the number of letters in the complete phonetic alphabet of Sanskrit grammarians. This is based on five places of articulation, to each of which corresponds a vowel (which can be long or short), a nasal and four consonants (corresponding with a pushing effort and a stopping effort, both of which can be dry or aspirate). To these are added all further possible mixed vowels, sibilants, etc., to a total of fifty-two letters. Over and above these is counted the sacred syllable (AUM) considered the origin and end of all the rest and corresponding with the Sa (C) of music which has a similar function with regard to all the other ŝhrutis.

Musical sounds therefore number fifty-three, though the disjunction of eight savarts at each half-tone is usually theoretically divided into two to form the sixty-six-ŝhruti scale. Thus the laws that govern musical and articulate sound are strictly parallel and interdependent, both kinds of sound serving, though on different planes, to manifest ideas.

Since the series + + is not usually used in music, five other series of five intervals each (more or less), remain at our disposal. These are the ascending and descending basic series, the ascending series —, the descending series + and the series — —. These five groups of sounds, we have already seen, were known to ancient Indian music as the five ŝhruti-jātis or classes of intervals.

Ŝhārṅgadevă gives them the following ancient names:

Madhyā (moderate): basic series ascending
Āyatā (large): basic series descending
Mṛidu (tender): series —
Karuṇā (pathetic): series — —
Dīptā (fiery): series +

The expression conveyed by these different classes of intervals has nothing arbitrary about it but corresponds with physical facts upon which all music depends. They are used everywhere, though more or less instinctively, by good singers or players of stringed instruments.

The fact that the division of śhrutis given by Śhārṅgadevă does not exactly correspond with the one we have arrived at should not surprise us, for as we have already seen, the *Saṅgītă Ratnākară* presents a mixture of elements from different systems brought together rather haphazardly, and its conclusions are therefore not always reliable.

The Scale

ग्रामः स्वरसमूहः स्यात्

"The scale (grāmă) is the collection of the notes" (*Saṅg. Mak.* 1, 49; *Saṅg. Ratn.* 1, 4, 1; *Saṅg. Darp.* 1, 95).

A scale is not a group of sounds arbitrarily chosen. The building of any scale involves physical laws which are necessarily respected by all men at all times. It is only through disregard of the natural intervals, resulting from a temporary perversion of taste, that, from time to time, people try to construct arbitrary musical systems or instruments which do not abide by the laws of physics. But such systems, like that of Aristoxenes for example, always finally give way before the fundamental laws of consonance which are the basis of all music.

A scale is formed, not as a more or less regular succession of ascending or descending notes, but first of all as a frame defined by the most perfect consonances, the gaps in it being gradually filled with less and less perfect intervals.

We start, therefore, with the octave, representing the relation of the full to the half string length, or the ratio of vibration 2/1. Then come the two intervals of fifth and fourth representing respectively the relation of a full string to two-thirds and three-quarters of its length, or the ratios of vibration 3/2 and 4/3.

These three intervals, octave, fifth and fourth, form the fixed frame C F G C (Sa Ma Pa Sa). They divide the octave into two main limbs or "aṅgăs"—C F and G C (Sa Ma and Pa Sa) separated by a major tone F G (Ma Pa) = 9/8. These two parts of the octave were known to the Greeks as "tetrachords" because, with two notes more within each of them, they formed the two four-stringed halves of the octave.

If, to fill each of the tetrachords, we take the most consonant intervals (those composed of simple ratios involving prime numbers not higher than 5), we obtain the basic harmonic scale of seven notes:

C	D	E	F	G	A	B	C
$\frac{1}{1}$	$\frac{9}{8}$	$\frac{5}{4}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{5}{3}$	$\frac{15}{8}$	$\frac{2}{1}$
Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa

There is, however, an alternative division. This consists in substituting for E (Ga) 5/4 and B (Ni) 15/8, E♭ (Ga komală) 6/5 and B♭ (Ni komală) 16/9 respectively. This gives the scale:

C	D	E♭	F	G	A	B♭	C
$\frac{1}{1}$	$\frac{9}{8}$	$\frac{6}{5}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{5}{3}$	$\frac{16}{9}$	$\frac{2}{1}$
Sa	Ri	Ga k.	Ma	Pa	Dha	Ni k.	Sa

If both scales are taken together, we get the basic scale of nine notes as it was used in ancient North Indian music.*†

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* These divisions form what is known as the Diatonic divisions of the scale, because each tetrachord contains two full tones.

There is, however, another division, known to the Greek theorists as the Chromatic, which still forms the basic scale of South Indian music. In this scale each tetrachord contains two semi-tones and one minor third:

	C	D♭	D	F	G	A♭	A	C
	$\frac{1}{1}$	$\frac{16}{15}$	$\frac{9}{8}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{8}{5}$	$\frac{5}{3}$	$\frac{2}{1}$
North Indian:	Sa	Ri k.	Ri	Ma	Pa	Dha. k.	Dha	Sa
South Indian:	Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa

In this system the two additional notes called Antară Ga and Kākali Ni are E (Ga) 5/4 and B (Ni) 15/8, giving the complete scale of nine notes.

	C	D♭	D	E	F	G	A♭	A	B	C
	$\frac{1}{1}$	$\frac{16}{15}$	$\frac{9}{8}$	$\frac{5}{4}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{8}{5}$	$\frac{5}{3}$	$\frac{15}{8}$	$\frac{2}{1}$
North Indian:	Sa	Ri k.	Ri	Ga	Ma	Pa	Dha k.	Dha	Ni	Sa
				Antară					Kākali	
South Indian:	Sa	Ri	Ga	Ga	Ma	Pa	Dha	Ni	Ni	Sa

This scale does not concern us here since it is never used as a basic scale in North Indian Music.

† The Sanskrit books generally define notes not by string-lengths but rather by their expression, their śhruti, which is the easiest way for trained musicians to recognize them.

The *Saṅgītă Pārijātă* and *Hṛidayă Kautukă* do however attempt to give the relative string-lengths of the different notes.

In the system known as Pythagorean, which is based exclusively on a succession of fifths and in whose ratios the prime number 5 never appears, the harmonic third E (Ga) 5/4 and the harmonic 6th and 7th, A (Dha) 5/3 and B (Ni) 15/8, are raised by one comma to give A+ (Dha+) 27/16, which is the perfect fifth from D (Ri) and, consequently, the E+ (Ga+) 81/64 perfect fifth from A+ (Dha+) and the B+ (Ni+) 243/128 perfect fifth from E+ (Ga+).

The basic Pythagorean scale of seven notes is thus:

C	D	E+	F	G	A+	B+	C
$\frac{1}{1}$	$\frac{9}{8}$	$\frac{81}{64}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{27}{16}$	$\frac{243}{128}$	$\frac{2}{1}$
Sa	Ri	Ga+	Ma	Pa	Dha+	Ni+	Sa

This gives us two forms of natural basic scale, founded upon the difference of one comma (81/80) in A (Dha) (the ancient Pañchamă G). The comma, as we have already seen, was taken as the unit of measurement of the scale.

The larger intervals between the notes of the seven-note scale are further divided to form half-tones. This gives us a division of the octave into twelve half-tones. But, as in the case of the seven main notes, several intervals, several śhrutis, offer themselves. If we choose always the more consonant, we obtain a basic division of the octave into twelve notes which we may call the basic chromatic scale.

Without changing anything in the seven- (or nine-) note scale, but changing the note chosen as starting-point, we obtain several basic scales. Such changes happen periodically, and this is how the scale considered as unaltered (śhuddhă) has changed several times in the course of history. Great caution is therefore needed in interpreting the scales given in ancient treatises.

The unaltered scale of modern North Indian music is the basic harmonic scale of seven notes. It is approximately the scale of Rāgă Bilāval, and is usually known by this name. It corresponds with the major mode of Western music.*

In this scale the intermediary sounds are considered as modifications of the seven main ones. These modifications are always conceived within the frame of the harmonic form of the chromatic scale, in which each note can be altered only in one direction—either flattened or sharpened.

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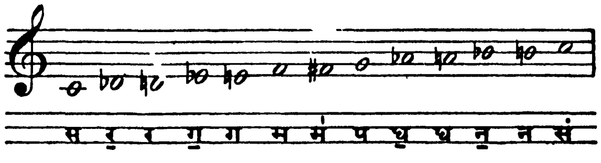
* The major mode, or Rāgă Bilāval, was first taken as the unaltered scale in the *Saṅgītă Sără* (compiled at Jaipur between 1779 and 1804) and in the *Nāgmat-e-Asaphi* of Muhammad Rezza in 1813.

The harmonic form of the chromatic scale thus gives the twelve chromatic notes as:



It should not be forgotten, however, that the altered (vikṛită) notes, and also certain of the unaltered (ŝhuddhă) ones, are susceptible to slight changes of pitch according to their expression or ŝhruti.

Besides the division of the octave into twenty-two or sixty-six ŝhrutis, which corresponds with what the ancient Greeks called the enharmonic division, and which they considered, as Hindus also do, the basic division of the scale, there thus exist in Indian music—indeed in all music—two main divisions of the octave—one (Diatonic) into seven notes, the other (Chromatic) into twelve. Mataṅgă says:

"Modal scales (mūrch'hanās) are of two kinds—the scales of seven notes or the scale of twelve." (*Bṛihaddeŝhī*, comm. on 1, 95.)[43]

The Three Basic Scales (*Grāmăs*)

ग्रामौ द्वौ षड्जमध्यमौ ।
केचिद् गान्धारमप्याहुः स (तु) नेहोपलभ्यते ॥

> "There are two scales—that of Ṣhadjă (C) and that of Madhyamă (F). Some also mention the scale of Gāndhāră (E) which is not, however, to be found in this world." (*Dattilam*, 11.)

In ancient music three basic scales or grāmăs were used. Each was named after its main note (which was not necessarily its tonic).* A difference of tonic was not and could not be their essential difference, for each of the notes in these scales could, successively, be taken as starting-point, thus forming plagal scales or mūrch'hanās which were further used as the basis of the modes. As we have already seen, the two main basic scales, the harmonic and the Pythagorean, are differentiated by the raising or lowering by one comma of the sixth note, the A (Dha) (ancient Pañchamă). This is also exactly the differentiation made in the *Nāṭyă Shāstră* between the two main ancient basic scales, the Ṣhaḍjă and Madhyamă grāmăs. For the ancient Hindus, as for Pythagoras, the main scale seems to have been the one we call Pythagorean: in Indian music, it is called Ṣhaḍjă grāmă, or scale of C (in the modern scale it is the scale of D, Ri). This is probably because its structure is determined by the perfect ascending fifth D A+ (Ri Dha+), based upon D (Ri).

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* The Ga grāmă (scale of E; modern scale of F, Ma) was said to start from Pa (modern Dha, A).

"The modal scale (mūrch'hanā) of Ṣhaḍjă grāmă is Sa, Ri, Ga, Ma, Pa, Dha, Ni.

"The modal scale of Madhyamă grāmă is Ma, Pa, Dha, Ni, Sa, Ri, Ga.

"The modal scale of Gāndhāră grāmă is Pa, Dha, Ni, Sa, Ri, Ga, Ma." (*Saṅgītă Dāmodară* 1, 40–41.)[44]

The second or harmonic scale was obtained by lowering the A+ (Dha+) (ancient Pa) into A(Dha). This was known as the Madhyamă grāmă, or scale of F (in the modern scale it is the scale of G Pa), its basic interval being the perfect descending fifth D G (Ri Pa).

The third basic scale known in ancient times (it is said to be used by celestial beings) was called Gāndhāră grāmă (scale of E, modern scale of F, Ma). In the surviving texts its nature is never explained in sufficient detail. There is a certain likelihood that it was based upon ratios in which the prime number seven predominates. Such a scale is said to have magical properties.

Since medieval times the differentiation of the grāmăs has, in practice, been abandoned and all the scales have come to be considered as modifications of the one Ṣhaḍjă grāmă,* particularly since the note Ṣhaḍjă itself became the universal tonic, and the basic notes of the grāmăs came to be taken as their tonic. Hence:

"All worldly music (deśhī) comes from the Ṣhaḍjă grāmă." (*Svar. Kal.* 5, 17.)[47]

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* "The basic scales (grāmăs) formed by the different arrangements of the svarăs are said to be three. They are known by the names Ṣhaḍjă(C), Madhyamă (F) and Gāndhāră (E). They are the basis of modal scales (mūrch'hanās) and the Ṣhaḍjă grāmă is the most perfect of the three. The modes obtained in the two other grāmăs are derived from the Ṣhaḍjă grāmă." (Ahobală, *Saṅgītă Pārijātă*, 97–98.)[45]

"The Gāndhāră and Madhyamă grāmăs are considered to be out of use. Their definitions are given only so that they may not be mistakenly reinvented." (*Rāgă-tattvă Vibodhă.*)[46]

"The modal scales begin from C (Sa) in the middle octave." (*Śh. tat. Ratn.* VI, 7, 47.)[48]

The three notes chosen as the basis of the three grāmăs—D, G, F (Ri, Pa, Ma) are those which, besides the tonic, never, in modal music, bear alteration of one comma, as do all the other notes. These three, therefore, are fixed points in all scales and no confusion can arise when intervals are measured in relation to them. This, for two of them, is remarked by Matańgă:

"Why is it that the basic scales (grāmăs) are called by the names of Ṣhaḍjă (C) and Madhyamă (F)? They are so called because these two notes are never altered. It is because they are never altered that they are said to belong to the kin of the Gods." (*Bṛihaddeśhī*, comm. on 92; also quoted by Simh. comm. on *Sańg. Ratn.* 1, 4, 6–8.)[49]

Flats and Sharps

As we have seen, all notes distinct from the seven notes of the basic scale are considered modifications of them. And since, between two notes, there are several intermediary sounds, these modifications are necessarily of different kinds.

"When a note rises by one interval (śhruti), it is called "tīvră" (sharp). If it rises by a further śhruti it becomes "tīvratară" (very sharp). If the note rises by still one more śhruti, it becomes "tīvratamă" (extremely sharp), and when it is raised by four śhrutis, the sages say that it takes the name of "ati-tīvratamă" (extra extremely sharp).

"If a note is lowered, it is called komală (flat); when it is lowered by one śhruti it is komală, but if it is lowered by two śhrutis it is called 'pūrvă'." (Pūrvă is now called ati-komală.) (*Sańgītă Pārijātă*, 68–71.)[50]

In most cases, this means that a note raised by a minor half-tone (25/24) is said to be sharp (tīvră), by a limma (256/243) "very sharp" (tīvratară); by a major half-tone (16/15) "extremely sharp" (tīvratamă).

Similarly, a note flattened by a half-tone equal to one śhruti (usually the minor half-tone, 25/24), is said to be "komală" (flat) and when it is flattened by a larger half-tone (the limma, 256/243, or the major half-tone, 16/15) it is said to be "ati-komală" (extremely flat).

Since this classification, though exact, may sometimes be misleading because of the different intervals represented by the ŝhrutis, we shall use here, as is often done, only the more general terms komală (flat) and tīvră (sharp); the tuning symbol, and the notation itself, will always show exactly which sort of flat or sharp is being used.

The Three Main Octaves (Saptakăs)

Music is mainly developed within three octaves. In singing, they correspond with the resonance of chest, throat and head. These three octaves are called "low " (mandră), "medium" (madhyă) and "high" (tāră).

"In practice there are three (octaves in singing)—the lower one (resounding) in the chest, the middle one in the throat and the higher one in the head. Each being the double of the other." (*Saṅg. Mak.* 4, 19 and *Saṅg. Ratn.* 1, 3, 7.)[51]*

To represent these octaves in Indian notation, we will use, as is often done, a dot above the note for the higher octave (सं) and a dot below for the lower octave (स़), the middle octave being left as it is (स). For the second higher octave two dots above will be used, and for the second lower octave two dots below.

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* Similarly:

"[The octaves are] in order: 'low octave' in the heart, 'middle octave' in the throat, 'high octave' in the head." (*Saṅg. Darp.* 1, 49).[52]

And:

"The lower octave has its place in the chest, the middle octave in the throat, the high octave in the forehead. Although they are similar. each is respectively the double of the preceding one." (*Nāradă Samhită.*)[53]

PART II

TECHNIQUE

CHAPTER IV

NOTATION

The Elements of Music

BEFORE we can proceed to the study of the different modes or rāgăs, we must analyse in detail the various elements used in music and find a suitable method for writing them down.

In modal music, as we have seen, absolute pitch, that is the frequency of the sound-vibrations, is first considered, and then the relative pitch of the sounds, that is their relation with a given sound chosen as tonic. Further, all the sounds employed within the octave will be considered as modifications of seven main sounds or svarăs.

These sounds can be soft or loud, they can be approached in different ways and variously ornamented, they can follow one another according to various sequences and rhythms.

To express all these intricacies in writing, a mode of notation has to be evolved.

Several ways of writing music have been used in different countries at various periods of history. In the system of notation adopted here there is almost nothing new. The ancient Indian method of notation has been fully used and only elements that were found inadequate or missing have been borrowed from other existing musical systems, so as to avoid, as far as possible, all innovation.

Notation of the Intervals (the Ŝhrutis)

For facility of execution (preferably on an Indian keyboard,* until the ear is trained to play them accurately on a stringed instrument), we have adopted for the ŝhrutis the following notation (C being always the tonic):

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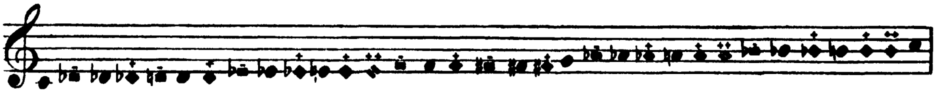
* That is any keyboard, such as the Visva Bharati's Ŝhruti Veṇu, designed to produce the exact intervals used in Indian music (as shown on p. 50–54)

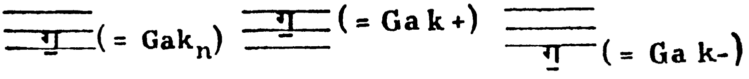
I. In staff notation.

The notes of the diatonic series based upon C are written, as usual, ♩ . Notes lowered by one comma are written ♩ . Those raised by one comma are written ♩ . The rare notes raised by two commas are written ♩ , those lowered by two commas ♩ . Thus the notation of the notes in ordinary use is:

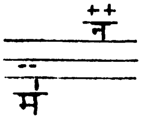


II. In the Indian syllabic notation, a triple line is used.

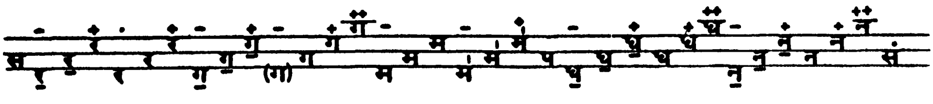
The notes of the ordinary harmonic scale based upon Sa (C) are written on the middle line, notes lowered by one comma on the lower line, notes raised by one comma on the higher line, thus:



Additional lines can be added for the rare notes raised or lowered by two commas:



Thus the notation is:

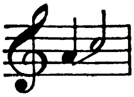


GENERAL NOTATION I

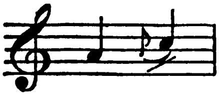
Staff notation

Once the notes on any instrument have been tuned to the proper intervals (śhrutis) for a given mode, very few additional signs are necessary to write the themes of Indian music in staff notation. The additional signs adopted here are the following:

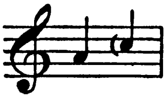
(a) *Glissando* (*mīḍā, the ancient vali*). A glide touching all the intermediary sounds between two notes will be written:

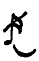
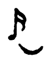


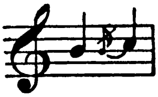
(b) *Portamento* (*ghasīṭā, the ancient kurulā*). Beginning the note from a grace note at the pitch of the preceding one, or even from a lower note, and then gliding rapidly to its own pitch, will be written:



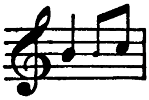
(or, as in Rameau)



(c) *A grace note* (*khaṭkā, the ancient kampitā*) is noted, as usual,  before the beat and  starting from the beat, but always rapid.



(d) *Slow grace notes* (*līnā*) are written as sung:



(e) *Mordents* (*tiripā and sphuritā, modern hillolā and giṭkiri*), if of normal amplitude, will be written as usual and ; but if the mordent is only a small vibration, less than half a tone in amplitude, it will be written between brackets:( ).

GENERAL NOTATION II

Indian syllabic—Sol-fa—notation

We shall follow the classical system used by Bhātkhaṇḍe, marking each note by its first letter and using the sign udāttă (raised) (म॑) above the letter for tīvră, and anudāttă (lowered) (॒) below the letter for komală. We shall however drop all the vowel-signs to leave as much room as possible for additional signs. The śhuddhă svarăs will thus be written:

स र ग म प ध न

Komală (*flat*) svarăs will be written: $\underline{\text{र}}$ $\underline{\text{ग}}$ $\underline{\text{ध}}$ $\underline{\text{न}}$, and *tīvră* (*sharp*) Ma as म॑

Mīḍă (*gliding, the ancient vali.*) A continuous line above the svarăs means "portamento" (mīḍă):

$$\overline{\text{स म}}$$

If a note begins with a rapid portamento (ghasīṭă) from a grace note at the pitch of the preceding note, this is indicated by an open bracket. For example: स (ग means स सग

Ornaments (*gamakăs or alamkārăs*) are written in small letters: $\overset{\frown}{\text{नगर}}$ $\overset{\frown}{\text{नरस}}$ They must be sung very quickly without interfering with the mātrā. Melody should be first practised without them.

$\overset{\frown}{\text{नसनस}}$ is written सँ

The slow trill (*gadgadită, sobbing*) स $\overset{\frown}{\text{रस}}$ $\overset{\frown}{\text{रस}}$ $\overset{\frown}{\text{रस}}$ etc., is written as sung. The quick trill, like a tremolo (corresponding, for example, with गमगमगमगमग, etc.) is written $\text{ग}^{\sim\sim\sim\sim}$

Grace notes (*khaṭkā, ancient kampită*) can begin with the beat of the mātrā or before. The mātrā-sign will, therefore, be written in its proper place either at the beginning of the grace or after it—either र सरस S or र सरस· S

w is the *mordent* (*gamakă—tiripă or hillolă*) using the note above, e.g.: स means सरस

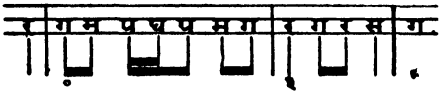
w is the mordent (gamakă—*sphurită* or *giṭkiri*) using the note below. E.g.: स means सऩस

< means increasing the volume of the voice.
> means decreasing the volume of the voice.
> (above the svară) means accentuated (स).
S means: hold the same sound for another mātrā.
– no sound.
ˈ (above the notes) means "staccato", i.e. stop the sound as soon as the note has been uttered, like the snapping of a string.

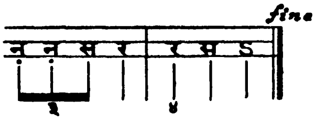
˙ A dot above means higher octave (tără). E.g. सं रं गं , etc.
̣ A dot below means lower octave (mandră). E.g. स़ ऱ ग़ , etc.
¨ and ̤ A double dot above means the second higher octave; a double dot below, the second lower octave.

⌣ Groups of notes sung as one word or sentence without taking breath are indicated by a slur र . . . . स. In this case the first note is always slightly accentuated and the last one always softer.

| and **|** The end of each time-beat is shown by a thin vertical line. The end of each rhythm-unit (tālă) is indicated by a thick vertical line. The samă is marked **x**, tāli 2, 3, etc., khāli o.



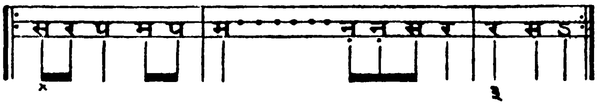
‖ The end of a piece, or of a part, is indicated by a double line. If it is the general end after repetitions, the word "fine"* (end) is added. E.g.:



‖: :‖ Repeat.

Any part which is to be repeated is enclosed within double vertical lines; those at the beginning have two dots after them ‖:, those at the end two dots before them :.

E.g.:



D.C. The letters D.C. (Da capo = from the beginning) placed after a double bar at the end of a passage mean that one should start again from the very beginning.

p means "piano" (पियानो, soft, sūkṣhmă).
pp „ "pianissimo" (पियानिस्सिमो, very soft, atisūkṣhmă).
f „ "forte" (फ़ोर्ते, loud, puṣhṭaḥ).
ff „ "fortissimo" (फ़ोतिस्समो, very loud, atipuṣhṭaḥ).
mf „ "mezzo forte" (मेड्ज़ो फ़ोर्ते, moderately loud, madhyă).

"a tempo" means "return to the original movement or speed."

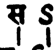
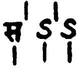
Division of Mātrās

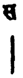
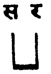
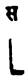
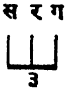
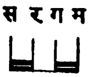
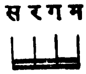
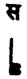
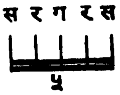
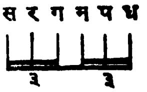
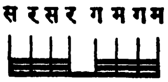
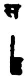
One time-unit or mātrā is represented by a vertical line below the note.

---

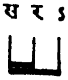
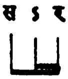
* Pronounce: फ़िने.

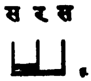
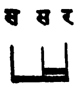
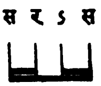
According to an international convention, all musical terms and abbreviations used in Western music are in the Italian language. We hope our Indian readers will not object to this introduction of foreign terms into the Indian notation: the use of such an international convention has the great advantage of making both Indian and staff notation easily understandable in every country.

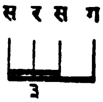
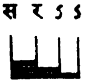
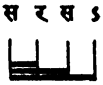
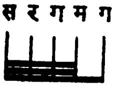
A note lasting one mātrā is thus written:
A note lasting two mātrās: 
A note lasting three mātrās:  etc.

One mātrā can be divided into:	One mātrā is 
(a) two equal parts, written 	1/2 mātrā is 
(b) three equal parts written 	
(c) four equal parts written  or 	1/4 mātrā is 
(d) five equal parts written 	
(e) six equal parts written 	
(f) eight equal parts written 	1/8 mātrā is 

In this way all the possible time divisions can be written. For example:

One quarter mātrā and 3/4:  ; 3/4 and 1/4: 

Two quarter mātrās and one half:  ; one half and two quarters:  ; one quarter, one half, one quarter:  ;

three 1/6 mātrās and one half:  ; one eighth of a mātrā and 7/8:  ; two 1/8 mātrās and 3/4:  ; four 1/8 mātrās and 1/2:  ; etc.

Tempos (Layă)

अथ त्रयो लयाः सिद्धा द्रुतमध्यविलम्बिताः ।

"There are three tempos—fast, medium and slow." (*Dattilă*, 151.)

Indian music, theoretically, knows three main tempos (layă), each being the double of the last. These are:

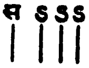
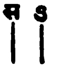
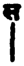
Vilambită (slow), in which each beat (tāli) is said to last about one second (a crotchet = 60).

Madhyă (medium), in which each beat is said to last about 1/2 second (a crotchet = 120).

Drută (fast), in which each beat is said to last about 1/4 second (a crotchet = 240).

In each case the exact tempo will be expressed, as is customary in Western music, by the number of "time units (mātrās) per minute" as they are given by an ordinary *metronome*. For example, a crotchet = 54, a crotchet = 40 (mātrā = 54, mātrā = 40) mean that there are respectively 54 mātrās and 40 mātrās per minute.

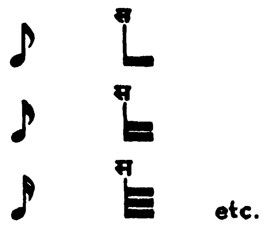
The notes, according to their length, usually bear the following names:

Chatasră. semibreve,	lasts 4 mātrās (units)		𝅝	
Guru (long), minim,	„ 2 „		𝅗𝅥	
Laghu (short), crotchet	„ 1 „		𝅘𝅥	

Drută (fast), quaver lasts 1/2 mātrās (units)

Aṇu-drută (atom-fast), ,, 1/4 ,,
semiquaver

Aṇu-aṇu-drută (demi- ,, 1/8 ,,
semiquaver)



In a more ancient system (see Svarup: *Theory of Indian Music*, p. 106) the mātrā or time-unit is said to be the shortest time in which a syllable can be pronounced. The normal human pulse-beat lasts three mātrās. The usual musical beat, or clap of the hand, is then called laghu (short) and is said to last from 3 to 9 mātrās (usually 4).

According to this system the time-divisions are as follows:

(♩) (|) Laghu (short) lasts 4 mātrās.
(♪) (⌊) Drută (fast) lasts 2 mātrās.
(𝅘𝅥𝅯) (⌊) Kalā (portion) (or Aṇudrută, or Aṇu, or Virāmă) lasts 1 mātrā.

Nimiṣhă (wink) is 1/8 of a mātrā.
Kāṣhṭhă (limit) 1/8 of a Nimiṣhă.
Lavă (fragment) 1/8 of a Kāṣhṭhă.
Kṣhaṇă (instant) 1/8 of a Lavă.

(𝅗𝅥) (ऽऽ) Guru (long) = 8 mātrās.
(𝅗𝅥.) (ऽऽऽ) Plută (extended) = 12 mātrās.
(𝅝) (ऽऽऽऽ) Kākăpadă (crow-foot) = 16 mātrās.

The tempos, like the scales, are connected with moods:

"In a laughing or a loving mood use a moderate tempo; in disgust and fear, a slow one; in the heroic mood, in wrath and in wonder, a fast tempo." (*Viṣh. Dharm.* III, 18.)[54]

CHAPTER V

RHYTHM (TĀLĂ)

उत्पत्त्यादित्रयं लोके यतस्तालेन जायते ।
कीटकादिपशूनाञ्च तालेनैव गतिर्भवेत् ॥
पा (या ?) नि कानि च कर्माणि लोके तालाश्रितानि च।
आदित्यादिग्रहाणाञ्च तालेनैव गतिर्भवेत् ॥

"The arising, enduring and disappearance of the three worlds come from rhythm (tālă). From the smallest worm onward, all animals move by rhythm. All work in the world depends on rhythm. It is by rhythm that the sun and the planets move." (Quoted in *Rāgă Kalpadrumă.*)

गीतं वाद्यं तथा नृत्यं यतस्ताले प्रतिष्ठितम् ।

"Song, dance and the playing of instruments depend upon rhythm." (*Saṅg. Ratn.* 5, 2; *Śh. tat. Ratn.* 6, 9, 1.)

Indian music uses a great number of rhythms or "tālăs"* and they are often of great subtlety and complexity.

In the Ālāpă, the first exposition of the theme of a rāgă, though there are rhythmic-units (mātrās), there is no complex rhythm. This will be introduced only when, after the Ālāpă, the "full exposition of the theme in slow tempo", the development of variations requires all kinds of rhythms. The usual notation of rāgăs is necessarily limited to the first exposition of the theme in the Ālāpă, and cannot therefore use any definite tālă.

The syllables (bols) given are the mnemonic names of the different strokes on the drums (tablā or pakhāvajă) used in stating the base rhythm without ornamentation. For the tablā, this basic rhythm is called "thekā". The syllables used to represent the strokes on the large drum (pakhāvajă) differ form those for the tablā: they are called "thapiyā".

---

* "The syllable 'ta' represents Śhaṅkară (Śhivă) the 'Giver of Happiness', the syllable 'la' the 'Lady of the Mountain' (Pārvatī). Rhythm is called 'tālă', because it is the union of the First Principle (Śhivă) and his Energy (Śhakti = Pārvatī). Śhivă and Śhakti being its very nature, Rhythm (tālă), one with the life-breath, is meritorious, leads to fame, gives enjoyment and Liberation and so is cherished by Yogis." (Quoted in *Rāgă Kalpadrumă* and *Śh. tat. Ratn.* 6, 9, 3, in the latter the first two lines only.)[55]

A rhythm, or tālă, consists of three elements—an initial beat called "samă", other beats called "tāli", and empty beats. or rests called "khāli". The middle point of a tālă is called "visamă".

The first beat of each tālă (the "samă") is marked x or 1, the subsequent beats ("tālis") are marked 2, 3, 4, etc. the empty beats or rests ("khālis") are marked 0 (or 𝄽).

Each of the equal time-units (represented here by distinct syllables) is called a mātrā.

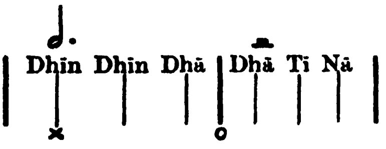
The Main Rhythms (*Tālăs*)

मुखप्रधान देहस्य नासिका मुखमध्यके ।
तालहीनं तथा गीतं नासाहीनं मुखंयथा ॥

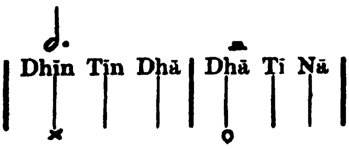
"The face predominates in the body and the nose is in the middle of the face. A song without rhythm is like a face without a nose." (*Saṅg. Ratn.*, *Nādārthă Rāgă mālā.*)

Tālă Dādără 6/4

6 mātrās (time-units), one main beat, two divisions: 𝅗𝅥. 𝄽 𝄼 (Tablā bols).

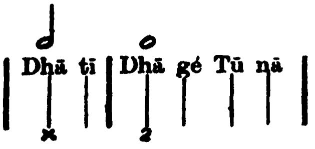


The alternate measure-bar can have the variation:



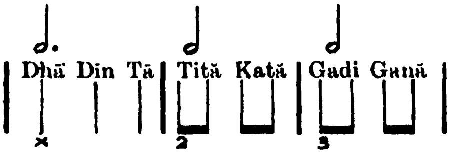
Pātī Tālă 6/4

6 mātrās, 2 main beats, 2 divisions: 𝅗𝅥 𝅝



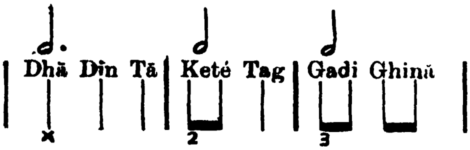
Tālă Tīvră 7/4

7 mātrās, 3 main beats, 3 divisions: 𝅗𝅥. 𝅗𝅥 𝅗𝅥
(Pakhāvajă bols)



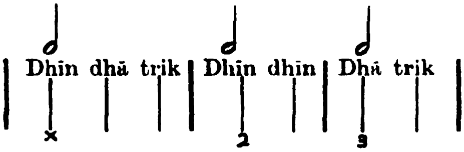
Teorā 7/4

7 mātrās, 3 main beats, 3 divisions: 𝅗𝅥. 𝅗𝅥 𝅗𝅥



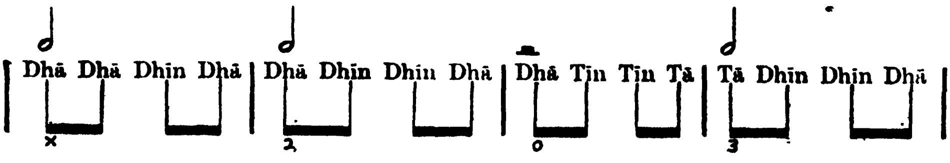
Rūpakă 7/4

7 mātrās, 3 main beats, 3 divisions: 𝅗𝅥. 𝅗𝅥 𝅗𝅥
(Tablā bols)

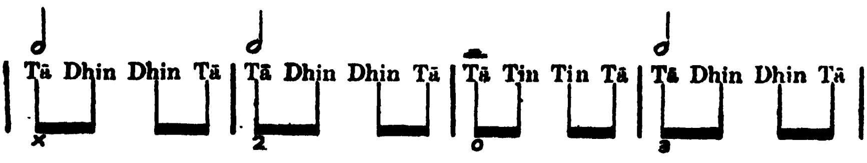


Tritālă 8/4

8 mātrās, 3 main beats, 4 divisions: 𝅗𝅥 𝅗𝅥 𝄼 𝅗𝅥
(Tablā bols)

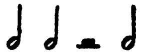


Or:

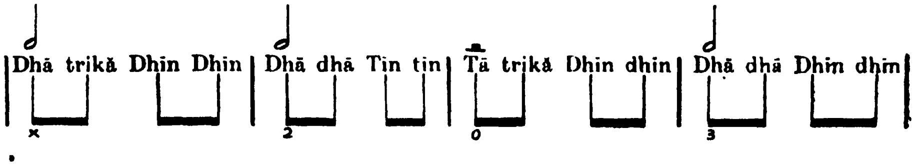


Tīlăvāḍā 8/4

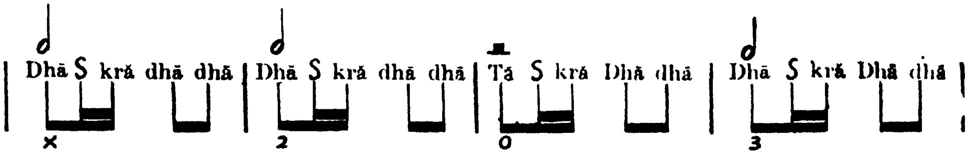
8 mātrās, 3 main beats, 4 divisions:



(Tablā bols)

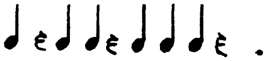


Or:

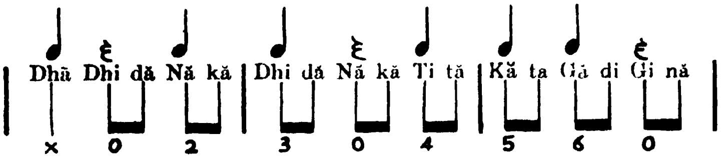


Mattă Tālă 9/4

9 mātrās, 6 main beats, 9 divisions:

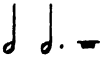


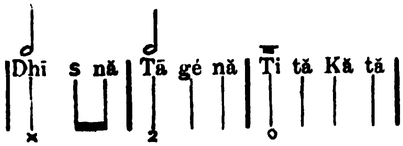
(Tablā bols)



Kulă Tālă 9/4

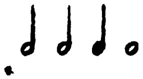
9 mātrās, 2 main beats, 3 divisions:

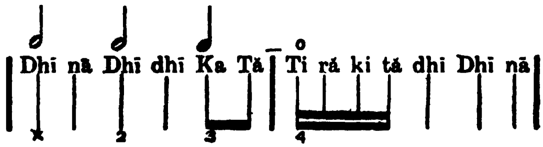




Chandrăkrīḍā Tālă 9/4

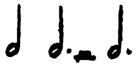
9 mātrās, 4 main beats, 4 divisions:

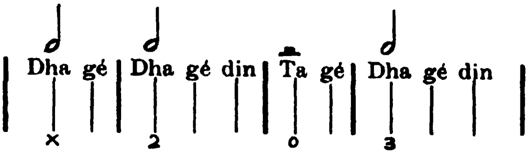




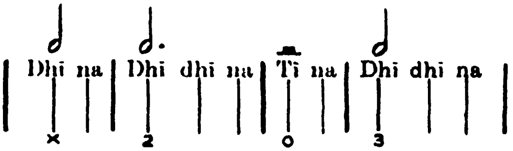
Jhapătālă 10/4

10 mātrās, 3 main beats, 4 divisions:

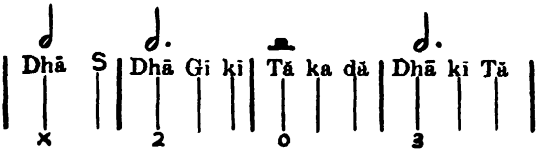




also given (tablā bols) as:

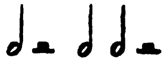


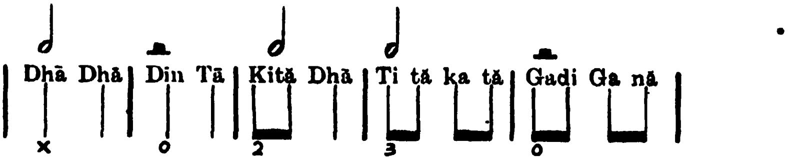
Or (pakhāvajă bols):



Sūlă Tālă 10/4

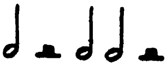
10 mātrās, 3 main beats, 5 divisions:
(Pakhāvajă bols)

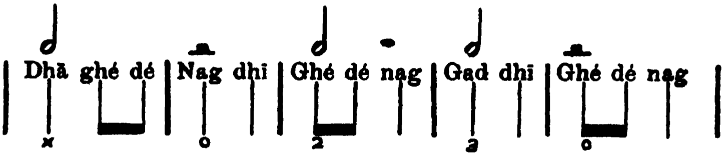




Surăphāktā 10/4

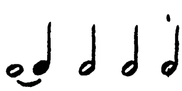
10 mātrās, 3 main beats, 5 divisions:

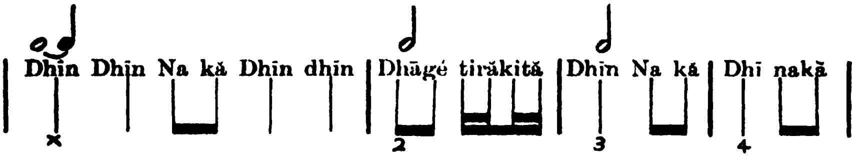




Jagăpālă Tālă 11/4

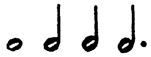
11 mātrās, 4 main beats, 4 divisions:

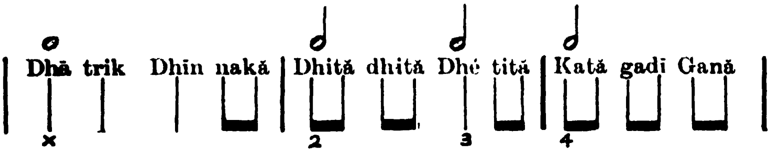




Bhānumati Tālă 11/4

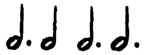
11 mātrās, 4 main beats, 4 divisions:

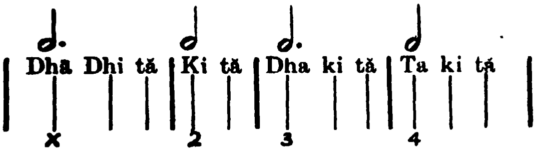




Mandarī Tālă 11/4

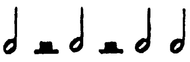
11 mātrās, 4 main beats, 4 divisions:

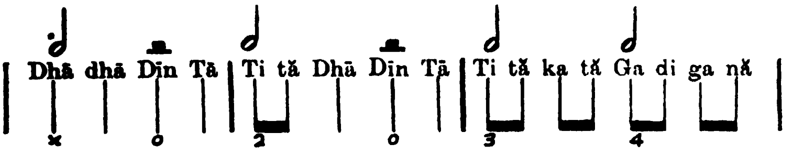




Chautālă 12/4

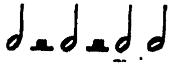
12 mātrās, 4 main beats, 6 divisions:
(Pakhāvajă bols)

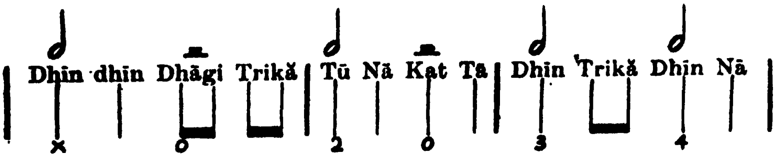




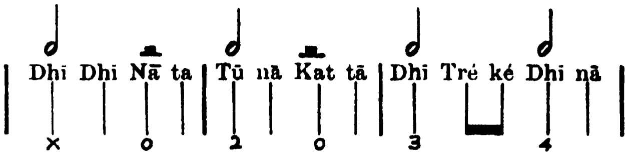
Ekă Tālă 12/4

12 mātrās, 4 main beats, 6 divisions:
(Tablā bols)



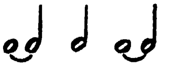


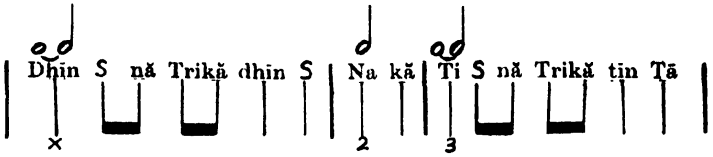
Or:



Udayă Tālă 12/4

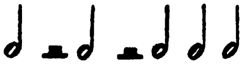
12 mātrās, 3 main beats, 3 divisions:

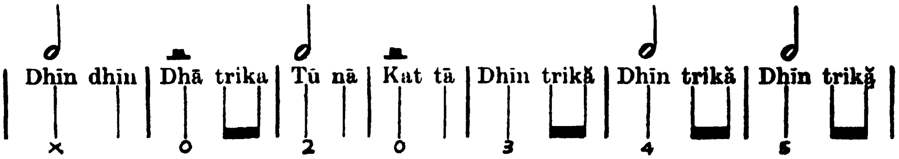




Pharodastă Pañjā Tālă 14/4

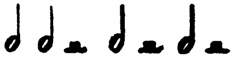
14 mātrās, 5 main beats, 7 divisions:

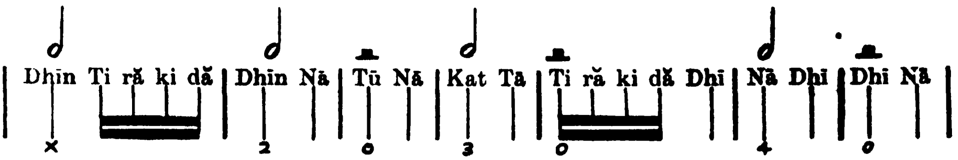




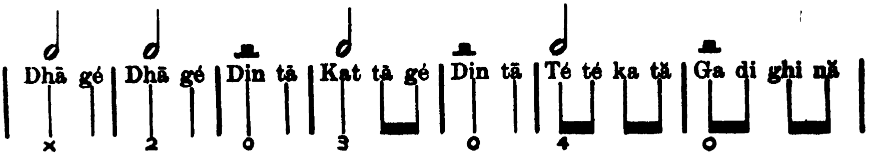
Āḍā Chautālă 14/4

14 mātrās, 4 main beats, 7 divisions:
(Tablā bols)



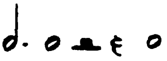


Or:

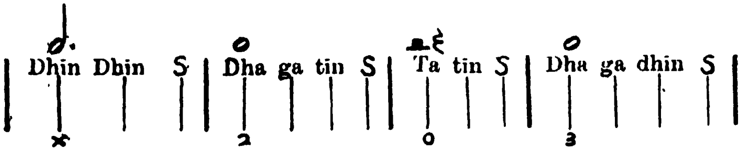


Dīpăchandī 14/4

14 mātrās, 3 main beats, 4 divisions:

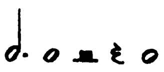


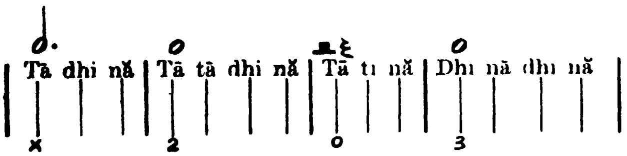
(Tablā bols)



Yată 14/4

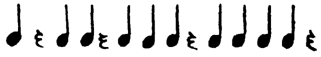
14 mātrās, 3 main beats, 4 divisions:

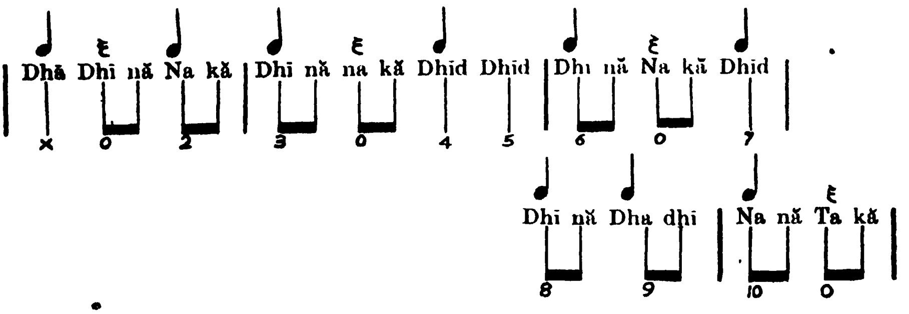




Brahmă Tālă 14/4

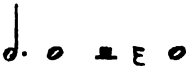
14 matras, 10 main beats, 14 divisions:



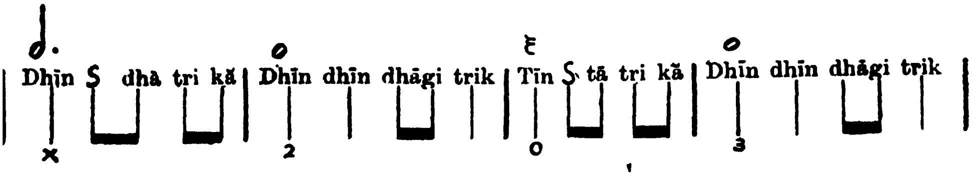


Jhūmără Tālă 14/4

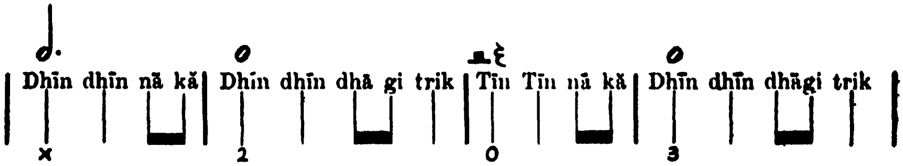
14 mātrās, 3 main beats, 4 divisions:



(Tablā bols)

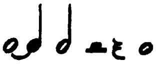


The alternate measure-bar can have the variation:

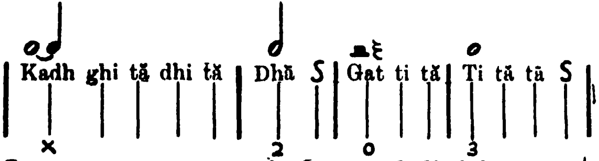


Dhamār Tālă 14/4

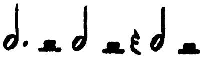
14 mātrās, 3 main beats, 4 divisions:

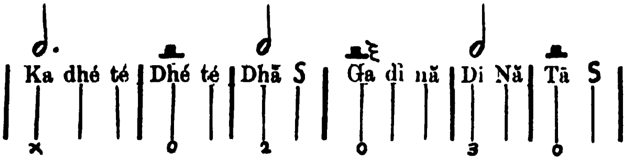


(Pakhāvajă bols)



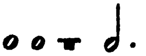
Or: 14 mātrās, 3 main beats, 6 divisions:



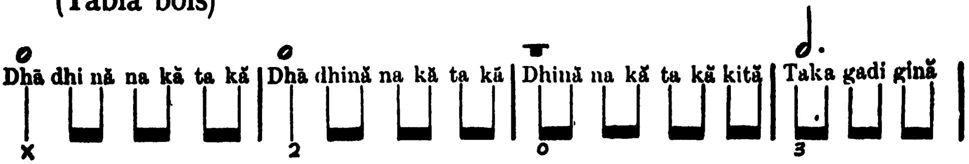


Gajă Jhampă Tālă 15/4

15 mātrās, 3 main beats, 4 divisions:

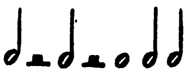


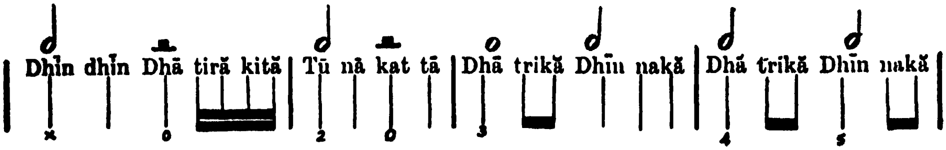
(Tablā bols)



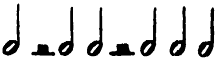
Pañjā Sādhā Tālă 16/4

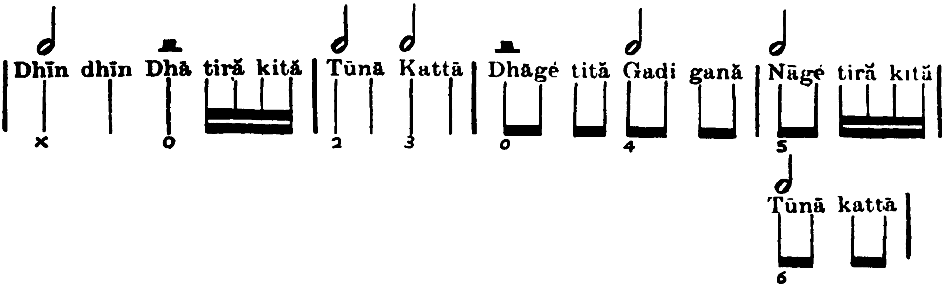
16 mātrās, 5 main beats, 7 divisions:



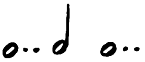


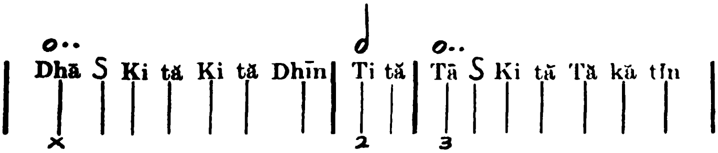
Chhakkā Tālă 16/4

16 mātrās, 6 main beats, 8 divisions: 

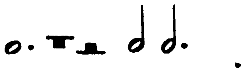


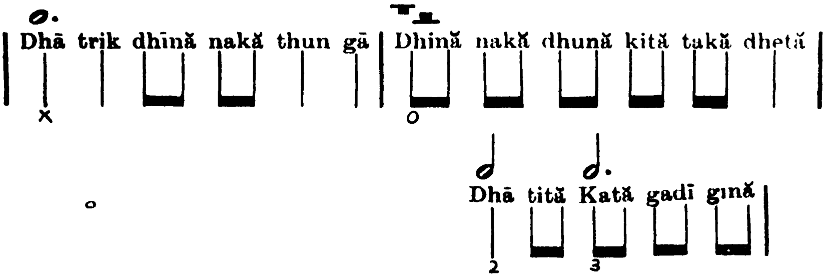
Udīraṇā Tālă 16/4

16 mātrās, 3 main beats, 3 divisions: 



Śhikharā Tālă 17/4

17 mātrās, 3 main beats, 4 divisions: 



Syncopation

"From the point of view of rhythm, the attack of the sound can be of three kinds: 'on the beat' (samă), 'after the beat' (atītă) and 'before the beat' (anāgată).

"When the rhythm follows exactly the same timing as the song [dance, instruments], etc., and the stroke [of the drum] comes together with the rhythmic clap of the hands, this is known as the attack 'on the beat' (samă).

"When the attack [of the note] in the song comes after the clap of the hand, this is known as 'after the beat' (atītă).

"And when the note has a slight tendency to be attacked early, when the hand is just lifted to clap, this is known as the attack 'before the beat' (anāgată)." (*Saṅgītă Sārāmṛită,* Tālă (13th) Chapter, p. 166, Madras ed.)[55]

Played "after the beat", the note is said to express reluctance, doubt.

Played "on the beat", the note expresses precision, soberness.

Played "before the beat", the note is said to express joy, liveliness, vitality.

CHAPTER VI

MELODIC DEVELOPMENT

Varṇă (*Melodic Movement*)

ALL the kinds of variations or melodic forms through which a scale can be developed into a melody are called "melodic movement" (varṇă). There are three possible elements of melodic movement—ascending, descending, keeping to the same note. A mixture of these three is said to form a fourth kind of melodic movement, called "wandering" (sañchārī).

"The action of singing is called 'melodic movement' (varṇă). It is of four kinds, defined as: level, ascending, descending and wandering." (*Saṅg. Ratn.* 1, 6, 1; *Saṅg. Darp.* 1–160.)[56]

"Holding the same note continuously is called sthāyī (level)* the two others are as their names indicate: ascending is called ārohă, descending is called avarohă; a melodic movement combining all these features is called sañchārī (wandering)." (*Saṅg. Ratn.* 1, 6, 2–3; *Saṅg. Darp.* 1, 160–161; *Śh. tat. Ratn.* 6, 7, 82.)[58]

The "level" (sthāyī) melodic movement is also described as follows:

"Where differences are numerous, this is called 'level' (sthāyī) melodic movement. And when a motive begins and ends on the same note this is also 'level' (sthāyī)." (*Śh. tat. Ratn.* VI, 7, 84–85.)[59]

Tānăs (*Melodic Figures*)

ऊनपञ्चाशत्कोटि तानत्रयभेदाच्च कथ्यते ॥

"The 490,000,000 tānăs are divided into three categories."
(*Nāṛ. Samh.* 2, 64.)

Tānăs are the melodic figures formed by combining the notes together.

* "The singing of verses on one note only is called sthāyī (level) melodic movement." (*Dattilam*, 98.)[57]

"The weaving together of the notes forms the tānăs (melodic figures)." (*Nār. Śhik.* 1, 2, 6.)[60]

These melodic figures are divided into two chief categories, those that belong to one mode only and those belonging to several modes, the first being known as pure (śhuddhă tānăs), the second as deceitful (kūṭă tānăs). Since a difference in any of the notes brings a change of mode, only figures that make use of all the notes of a mode can be said without doubt to belong to it alone. So the śhuddhă tānăs are usually said to be identical with the plagal forms of the scales (the mūrch'hanās).

"The tānăs (melodic figures) are of two kinds—pure (śhuddhă) or deceitful (kūṭă). A pure tānă is that through which the form of one rāgă only can appear, while a deceitful tānă is one through which the form of two or more different rāgăs may appear because it is common to several. For some unknown reason the ancient writers have not explained the use [of the pure tānăs] in practical detail. But all agree that their number is eighty-four. In the opinion of some, they are developed from the mūrch'hanās (plagal scales)." (*Chaturdaṇḍi Prakāśhikā.*)*[61]

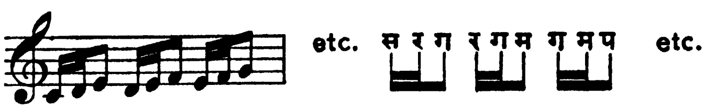
The number of possible combinations of the notes to form melodic figures or tānăs is theoretically very large.

"In each of the plagal scales (mūrch'hanā) there are five thousand and forty [possible] kūṭă tānăs." (*Saṅg. Ratn.* 1, 4; 33.)[63]

"In these fifty-six mūrch'hanās are counted 282,240 complete (pure) and deceitful (kūṭă) tānăs." (*Saṅg. Ratn.* 1, 4, 34–35.)[64]

In present-day music the word "tānă" is often used for the ancient alamkārăs. These form groups of notes or small melodic figures that repeatedly recur. When similar tānăs follow one another in ascending order this is called *āhăti* (rolling).

E.g.



The same descending is called pratyāhăti (rolling down).

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* "The melodic figures by which a mode, a rāgă, can be developed the wise call tānăs (extensions). They are defined as of two kinds—pure (śhuddhă) or deceitful (kūṭă). The secret of the definition of the śhuddhă tānăs is not to be developed here, so I need not speak of them." (Quoted in *Śhrīmallakṣhyă Saṅgītam.*)[62]

Mūrch'hanās (*Modal Scales*)

मूर्च्छते येन रागो हि मूर्च्छनेत्यभिसंज्ञिता ।

"That which spans (mūrchhă) the scale of a mode is called mūrch'hanā." (*Bṛihaddeśhī* 94.)

The term mūrch'hanā (modal scale) was used in medieval music for the different types of scales from which the modes are derived. There are three main types of such scales, and so three kinds of mūrch'hanās.

(1) The first use of the word mūrch'hanā refers to the classification of modes as plagal forms of the basic scale. This way of classification has however been replaced by the "scale-types" or ṭhāṭs.

"The sequence of the seven notes in ascent or descent is called mūrch'hanā. There are seven in each of the two basic scales." (*Saṅg. Mak.* 1–66, reproduced in *Chat. Rāgă*, 1, 22. *Saṅg. Ratn.* 1, 4, 9 and *Śh. tat. Ratn.* 6, 7, 32–44.)[65]

(2) The name mūrch'hanā was also given to the chromatic scale of twelve notes (see above, p. 92).

"The modal scale (mūrch'hanā) should be known to the wise as having twelve notes from which can be built mode-types and melodies in the high as well as the low octave." (Nandikeśhvară quoted in *Bṛihaddeśhī*, comm. on 118 and in Simh. comm. *Saṅg. Ratn.* 1, 4, 15–16.)[66]

(3) Mūrch'hanā was further used for pentatonic, hexatonic, heptatonic and eight- or nine-note scales. This division is now usually known as jāti (see below, section on Jāti).

"The modal scales of seven notes are of four kinds: complete (heptatonic, pūrṇă), hexatonic (ṣhāḍavă), pentatonic (auḍavă) and intercalary (sādhāraṇă). In singing, a scale of seven notes is considered the complete scale, a scale of six notes is called hexatonic, a scale of five notes pentatonic, a scale [of eight or nine notes], making use of the intercalary notes Kākali Ni (B♮, Ni śhuddhă) and Antară Ga (E♮, Ga śhuddhă), is called "intercalary" (sādhāraṇă)." (*Bṛihaddeśhī*, comm. on 1, 95.)[67]

The word *mūrch'hanā* is sometimes used in modern music, mostly by professional Muhammadan musicians, to represent melodic ornaments in the form of the mordents tiripă and sphurită (w or ψ); these are, however, [more usually called hillolă, or giṭkiri.

Alaṁkārǎ (Ornamental Vocalization)

शशिना रहितेव निशा विजलेव नदी लता विपुष्पेव ।
अविभूषितेव च स्त्री गीत्यलंकारहीना स्याद् ॥

> "A melody without ornament is like a night without moon, a river without water, a vine without flowers, or a woman without jewels." (*Nāṭ. Śh.* 29, 75.)

"An ornamental vocalization (alaṁkārǎ) is a combination of several 'melodic movements' (varṇǎs)." (*Saṅg. Ratn.* 1, 6, 3; *Śh. tat. Ratn.* VI, 7, 44.)[68]

Ornaments, now often confused with tānǎs (melodic figures), are vocalizations, or groups of notes used to adorn the melody, such as are used in the Khyāl style of singing.

Like the varṇǎs from which they are derived, alaṁkārǎs are divided into four kinds. The sthāyī alaṁkārǎs (or level ornaments) are simple vocalizings which come back to the note from which they start or to its octave; the ārohi (ascending) ornaments lead from one note to a different higher note; the avarohi (descending) ornaments lead from one note to a lower one; and the sañchārī (wandering) ornaments are elaborate vocalizations combining the previous ones.

The sthāyī (level) alaṁkārǎs number seven:

"The seven sthāyī alaṁkārǎs are prasannǎ-ādi* (beginning low), prasannǎ-antǎ (ending low), prasannǎ-ādi-antǎ (beginning and ending low), prasannǎ-madhyǎ (low in the middle); then, kramǎ-rechitǎ (orderly gallop), prastārǎ (the expanded) and prasādǎ (the serene)." (*Śh. tat. Ratn.* 6, 7, 85–86.)[70]

In the *Bṛihaddeśhī* (comm. on 1, 120) these are defined as follows:

"*Prasannǎ-ādi* (*beginning low*) starts from below and ascends to the upper octave, thus: Sa Ri Ga Ma Pa Dha Ni Sa."[71]
Do Re Mi Fa Sol La Si Do

"*Prasannǎ-antǎ* (*ending low*) descends from above, thus:
Sa Ni Dha Pa Ma Ga Ri Sa."[72]
Do Si La Sol Fa Mi Re Do

"*Prasannǎ-ādi-antǎ* (*beginning and ending low*) is low in the beginning and the end and high in the middle, thus:
Sa Ri Ga Ma Pa Dha Ni Sa Ni Dha Pa Ma Ga Ri Sa."[73]
Do Re Mi Fa Sol La Si Do Si La Sol Fa Mi Re Do

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* The word prasannǎ ("pleasing") is used in music as a technical term synonymous with mandrǎ ("low"). (*Bṛihaddeśhī*, comm. 1, 120): "The word 'mandrǎ' (low) is used for a pleasing (prasannǎ) sound."[69]

"*Prasannā-madhyā* (*low middle*) is low in the middle or high at the beginning and the end, thus:
Sa Ni Dha Pa Ma Ga Ri Sa Ri Ga Ma Pa Dha Ni Sa."[74]
Do Si La Sol Fa Mi Re Do Re Mi Fa Sol La Si Do

The span of the three other alaṁkārās is either less or more than an octave, but definitions of them (in the *Śhivā tattvā Ratnākarā*) do not seem very clear.

Besides those we have named "there are twelve ascending and twelve descending melodic figures used as vocalizations (alaṁkārās)." (*Śh. tat. Ratn.* 6, 7, 94.)[75]

Vocalizations of this last type, the wandering (sañchārī) alaṁkārās, are very numerous. "Among them seven are chiefly used by musicians. They are: tārā-mandrā-prasannā (high-low-low), mandrā-tārā-prasannā (low-high-low), āvartakā (whirlpool), sampradānā (gift), vidhutā (waved), upalolakā (rolling), ullāsitā (laughing)." (*Śh. tat. Ratn.* 6, 7, 96–98.)[76]

In the *Śhivā tattvā Ratnākarā* (6, 7, 101) these are defined:

(1) *Tārā-mandrā-prasannā* (high-low-low): Like prasannā-ādi.

(2) *Mandrā-tārā-prasannā* (low-high-low): Like prasannā-antā.

(3) *Āvartakā* (whirlpool):
Sa Sa Ri Ri Sa Sa Ri Sa; Ri Ri Ga Ga Ri Ri Ga Ri; Ga Ga Ma Ma Ga Ga Ma Ga; etc.
Do Do Re Re Do Do Re Do; Re Re Mi Mi Re Re Mi Re; Mi Mi Fa Fa Mi Mi Fa Mi; etc.

(4) *Sampradānā* (gift):
Sa Sa Ri Ri Sa Sa; Ri Ri Ga Ga Ri Ri; Ga Ga Ma Ma Ga Ga; etc.
Do Do Re Re Do Do; Re Re Mi Mi Re Re; Mi Mi Fa Fa Mi Mi; etc.

(5) *Vidhutā* (waved):
Sa Ga Sa Ga; Ri Ma Ri Ma; Ga Pa Ga Pa; Ma Dha Ma Dha; etc.
Do Mi Do Mi; Re Fa Re Fa; Mi Sol Mi Sol; Fa La Fa La; etc.

(6) *Upalolakā* (rolling):
Sa Ri Sa Ri Ga Ri Ga Ri; Ri Ga Ri Ga Ma Ga Ma Ga; Ga Ma Ga Ma Pa Ma Pa Ma; etc.
Do Re Do Re Mi Re Mi Re; Re Mi Re Mi Fa Mi Fa Mi; Mi Fa Mi Fa Sol Fa Sol Fa; etc.

(7) *Ullāsitā* (laughing):
Sa Sa Ga Sa Ga; Ri Ri Ma Ri Ma; Ga Ga Pa Ga Pa; Ma Ma Dha Ma Dha; etc.
Do Do Mi Do Mi; Re Re Fa Re Fa; Mi Mi Sol Mi Sol; Fa Fa La Fa La; etc.

Grace (*Gamakă*)

गमकैः स्वरस्य कम्पभेदैः ।

"Graces (gamakăs) are the ornaments of notes." (*Saṅg. Darp.* comm. 2–4.)

"When, in singing, a note rises from its own pitch and moves toward another so that [something of the expression of] the second sound passes like a shadow over it, this is called a grace (gamakă)." (*Saṅg. Sam.* 1, 47.)[77]

All the ways in which notes can be attacked, ornamented or resolved, are known under the general name of gamakă.

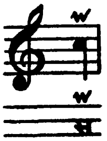
In Indian music these graces are very elaborate and of endless variety. Still they can be analysed: Shārṅgadevă and Nāradă III consider that their constituent elements number fifteen. Pārśhvadevă reduced this to seven, Nāradă II extended it to twenty-one.

"Gamakăs, also called 'roaming about' (charaṇă), are said to be of twenty-one kinds." (*Saṅg. Mak.* 2, 17.)[78]

"The grace that pleases the mind of the hearer is a gamakă. These are of fifteen different kinds, called Tiripă (flurry), sphuritā (throb), kampită (shake), līnă (melting away), āndolită (swing), vali (ripple), tribhinnă (threefold), kurulă (curl), āhată (struck), ullāsită (laughing), plāvită (overflow), gumphită (tied), mudrită (sealed), nāmită (obeisance), miśhrită (mixed)." (*Saṅg. Ratn.* II, 3, 87–89.)[79]

"Seven of the gamakăs are more particularly known. They are sphurită, kampită, līnă, tiripă, āhată, āndolită and tribhinnă." (*Saṅg. Sam.* 1, 48.)[80]

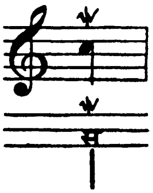
(1) *The Flurry* (*Tiripă*) (or Tiripu) now called Hillolă



"A lovely quivering like a very slight stroke on the drum, lasting only a quarter of a quaver (drută—i.e. 1/8th of a mātrā) is known as Tiripă." (*Sang. Ratn.* II, 3, 89–90.)*[81]

"When the intervals quickly move round like a whirl, this the connoisseurs of music know as Tiripu." (*Sang. Sam.* 1, 52.)[82]

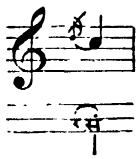
(2) *Throb* (*Sphurită*)
now called Giṭkiri



"The speed of sphurită is exactly one-third of a quaver (i.e. 1/6th of a mātrā)." (*Sang. Ratn.* 1, 3, 90.)[83]

"When intervals throb upwards at the speed of a semi-quaver (aṇu-drută—i.e. 1/4th of a mātrā), the wise call this Sphurită." (*Sang. Sam.* 1, 49.)[84]

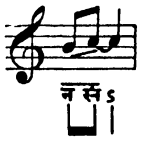
(3) *The Shake* (*Kampită*)
now called "*Khaṭkă*"



"The Kampită gamakă lasts a semi-quaver (i.e. 1/4 mātrā)." (*Sang. Ratn.* II, 3, 91.)[85]

"A shake of the note at twice the speed of a quaver (i.e. 1/4 mātrā) is known as Kampită." (*Sang. Sam.* 1, 50.)[86]

(4) *Melting away* (*Līnă*)



"The speed of Līnă is that of a quaver (drută = ½ mātrā.)" (*Sang. Ratn.* II, 3, 91.)[87]

"When a note at the speed of a quaver softly melts into another neighbouring note this is called Melting away (Līnă)." (*Sang. Sam.* 1, 51.)[88]

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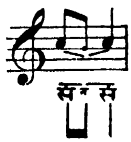
* The Sanskrit definitions of the gamakăs are not always very clear. They are interpreted here in the way that gives the most likely results for the formation of the combined graces. Some of them may however have been misunderstood.

All the definition of gamakăs in the *Sangītă Ratnākară* are reproduced with a few minor variations in the *Śhivă tattvă Ratnākară* VI, 7, 100–116.

(5) *Swing* (*Āndolitā*)

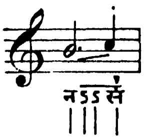


"Āndolitā lasts one crotchet (one mātrā)." (*Saṅg. Ratn.* II, 3, 91.)[89]

"Whatever the speed of singing—fast, medium or slow—a swing lasting one crotchet (mātrā) constitutes the grace called Āndolitā." (Simh. comm. on *Saṅg. Ratn.* II, 3, 90.)[90]

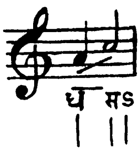
"When there is a rocking of the notes lasting one crotchet or mātrā, this grace is spoken of as a 'swing' by connoisseurs of music." (*Saṅg. Sam.* 1, 54.)[91]

(6) *The Overflow* (*Plāvitā*)



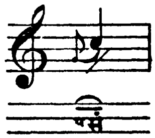
"When the shake of the note lasts three crotchets (1 plutā = 3 mātrās) this is called an Overflow." (*Saṅg. Ratn.* II, 3, 94.)[92]

(7) *The Ripple* (*Vali*)
now called Mīḍā



"Any kind of fast sliding is called a Ripple (Vali)." (*Saṅg. Ratn.* II, 3, 92.)[93]

(8) *The Curl* (*Kurulā*)
now called Ghasīṭā

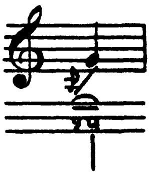


"Kurulā is like Vali but performed softly with a contracted throat." (*Saṅg. Ratn.* II, 3, 93.)[94]

(9) *The Sealed* (*Mudritā*)

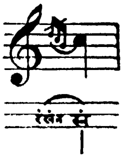
"The gamakā called Sealed is produced by closing the mouth." (*Saṅg. Ratn.* II, 3, 95.)[95]

(10) *The Tied* (*Gumphitā*)



"A deep aspirate descending into the chest is called Tied (Gumphită)." (*Saṅg. Ratn.* II, 3, 95.)[96]

(11) *The Threefold* (*Tribhinnă*)

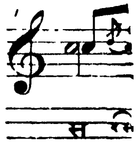


"The Threefold is a compact ornament running at one stroke through three notes without any rest." (*Saṅg. Ratn.* II, 3, 92.)[97]

"A grace that touches three distinct points and amalgamates the qualities of all the three, turning round the note in a single flow, is traditionally known as the Threefold (Tribhinnă)." (*Saṅg. Sam.* 1, 55.)[98]

The *Bṛihaddeśhī* calls this ornament Kuharită (Cuckoo) in the middle of octave and Rechită (the Gallop) in the higher octave.

(12) *Struck* (*Āhată*)



"Striking a neighbouring note and coming back is known as Struck (Āhată)." (*Saṅg. Ratn.* II, 3, 93.)[99]

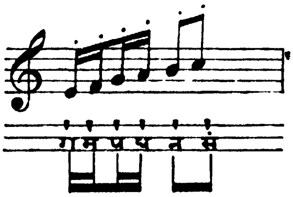
"Striking the next highest note, touching it slightly, and quickly coming back is called "Struck" (Āhată)." (Simh. comm. on *Saṅg. Ratn.* II, 3, 93.)[100]

Mataṅgă calls this ornament the Point (*Bindu*):

"When, after remaining a long time on a note such as Sa (Do), one touches with the speed of fire a higher note, remains there but for a semi-quaver (Kālă = 1/4 mātrā) and again comes down to the original Sa, this is the Point (Bindu)." (*Bṛihaddeśhī,* comm. on 1, 120.)[101]

A succession of Āhatăs makes a sort of sobbing trill, called *Gadgadită* (*Sobbing*), much used in Indian music.

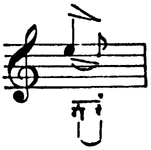
(13) *Laughing* (*Ullāsită*)



"When the notes follow one another in order this is called 'Laughing' (Ullāsită)." (*Saṅg. Ratn.* II, 3, 94.)[102]

"In Ullāsitā the notes ascend one following another." (Simh. comm. on *Saṅg. Ratn.* II, 3, 94.)[103]

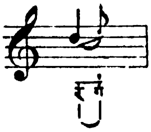
(14) *Obeisance* (*Nāmitā*)



"A bowing down of the notes the expert in music call Nāmitā." (*Saṅg. Ratn.* II, 3, 96.)[104]

"Nāmitā is an ornament in which the notes come down to a lower pitch as if bowing." (Simh. comm. on *Saṅg. Ratn.* II, 3, 95.)[105]

(14a) *Freed* (*Nivṛittă*)



is the opposite of Nāmitā.

"Touching another note for one semi-quaver, as in Bindu, but stopping it without any tendency to come back is called Nivṛittā (Freed)." (*Bṛihaddeśhī*, comm. on 1,120.)[106]

* * *

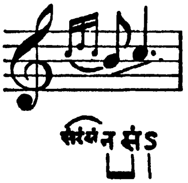
Out of these elements elaborate ornaments can be built, and they are called the mixed gamakăs.

(15) *Mixed* (*Miśhritā*)

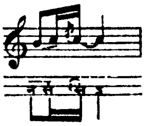
"Mixtures of these are known as the 'Mixed' [gamakăs]. They are of many kinds." (*Saṅg. Ratn.* II, 3, 96.)[107]

Example of mixed gamakăs, given in the *Saṅgītā Ratnākară* (3, 178–182),[108] are as follows:

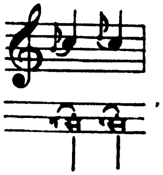
(1) Flurry—swing
(Tiripă—āndolitā)



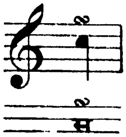
(2) Melting away—shake
(Līnă—kampită)



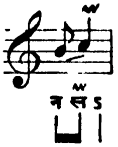
(3) Shake—struck
(Kampită—āhată)



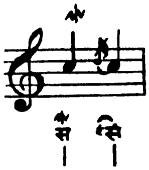
(4) Flurry—throb
(Tiripă—sphurită)



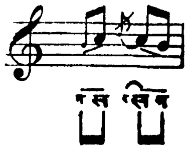
(5) Melting away—throb
(Līnă—sphurită)



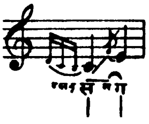
(6) Throb—struck
(Sphurită—āhată)



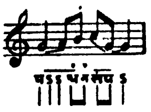
(7) Melting away—shake—melting away
(Līnă—kampită—līnă)



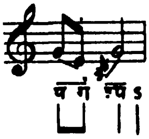
(8) Threefold—curl—struck
(Tribhinnă—kurulă—āhată)



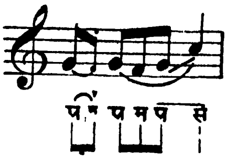
(9) Overflow—laughing—ripple
(Plāvită—ullāsită—vali)



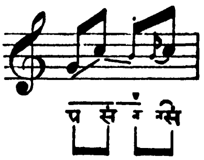
(10) Ripple—tied—sealed
(Vali—humphită—mudrită)



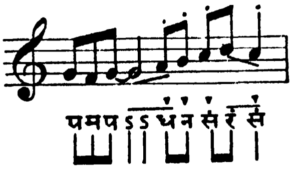
(11) Obeisance—swing—ripple
(Nāmită—āndolită—vali)



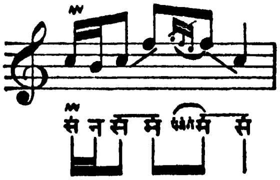
(12) Ripple—obeisance—shake
(Vali—nāmită—kampită)



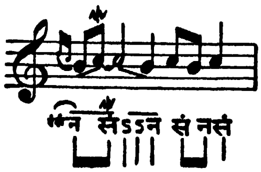
(13) Swing—overflow—much laughing—obeisance
(Āndolită—plāvită—samullāsită—nāmită)



(14) Flurry—swing—ripple—threefold—curl
(Tiripă—āndolită—vali—tribhinnă—kurulă)



(15) Threefold—melting away—throb—overflow—swing
(Tribhinnă—līnă—sphurită—plāvită—āndolită)



The modern *Bhelavă*, a slow mordent at the end of a glissando, would be Vali-sphurită.

Grahă, Amśhă, Nyāsă

In ancient music, three notes are spoken of under the names of amśhă, grahă and nyāsă.

"The note with which a rāgă must begin is called Grahă. By Nyāsă is understood the note that ends a song. The note most often used while playing is called 'amśhă'." (*Saṅg. Darp.* 163.)[109]

The use of the terms grahă and amśhă is a little confusing, for their meaning is taken differently by authors of different periods Some understand the "initial note" (grahă) as the first note of the mode, that is the tonic; others take it as the first note of a melody, which may well be any note. But this last interpretation seems hardly justified.

Similarly the "main note" (amśhă) is taken to mean sometimes the tonic and sometimes the predominant note, the "sonant" or vādī.* The more ancient authors seem to have used the word in the first sense. Thus the *Nāṭyă Śhāstră* takes the word grahă as synonymous with "amśhă" and meaning the tonic:

"In all the modal scales the initial note (grahă) is equivalent to the main note (i.e. the tonic). The whole music takes its significance from this main note (amśhă) which is the same as the initial note (grahă)." (*Nāṭ. Śh.* 28, 71, also quoted in *Bṛihaddeśhī*, comm. on 197.)[110]

The *Bṛihaddeśhī*, also uses the term "amśhă" (main note) in the sense of "tonic" (basic note, Sa):

"The main note by relation with which a mode, a rāgă, is manifested is the amśhă (i.e. the tonic, Sa)." (*Bṛihaddeśhī*, comm. on 1, 196.)[111]

"This amśhă-svară is the vital note (Jīvă-svară, the tonic)." (*Chaturdaṇḍī Prakāśhikā.*)[112]

In the later music "Sa (C) is the initial (grahă, i.e. the tonic) of all the rāgăs." (*Rāgă Mālā.*)[113]

But Śhārṅgadevă, on the other hand, identifies the "amśhă" the main note, with the "sonant", the vādī:

"Because it is most used during a performance, the vādī (sonant) is called amśhă (main note)." (*Saṅg. Ratn.* 1, 7, 34.)[114]

This is also the view of Abhinavă Guptă, in his commentary on the *Nāṭyă Śhāstră*:

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* See below: the Sonant (Vādī), p. 125.

"The amśhă svară is the same as the vādī." (Abhinavă Guptă, comm. on the *Nāṭyă Śhāstră* 28, 23.)

"The [note] that is most used is also called amśhă." (*Bṛihaddeśhī,* comm. on 1, 196.)[115]

"The structure of the mode entirely depends on the amśhă (tonic), from which it begins, which separates the high or low octaves, and from which its expression is derived. The amśhă is, further, the initial and final note (grahă and nyāsă), the phrase-final, part-final, and general-final note (apanyāsă, vinyāsă, sannyāsă), the centre round which the mode revolves. These are its ten characteristics." (*Nāṭ. Śh.*, also quoted by Kallināthă, *Saṅg. Ratn.* comm. 1, 7, 29–34.)[116]

PART III

THE DEFINITION OF THE RĀGĂS

नाहं वसामि वैकुण्ठे योगिनां हृदये न च ।
मद्भक्ता यत्र गायन्ति तत्र तिष्ठामि नारद ! ॥

"I do not dwell in heaven, nor in the heart of yogis. There only I abide, O Nāradă, where my lovers sing." (*Nāradă Samhitā* 1, 7.)

CHAPTER VII

THE RĀGĂS

Rāgăs or Modes

रञ्जयतीति रागः

"That which charms is a rāgă."*

UNLIKE Western music, which constantly changes and contrasts its moods, Indian music, like Arabic and Persian, always centres in one particular emotion which it develops, explains and cultivates, upon which it insists, and which it exalts until it creates in the hearer a suggestion almost impossible to resist. The musician can then, if his skill be sufficient, lead his audience through the magic of sound to a depth and intensity of feeling undreamt of in other musical systems.

The notes which are to convey certain definite emotions or ideas must be carefully selected from the twenty-two intervals of the shruti scale and then grouped to form a mode, a rāgă. Any artificially formed scale is not necessarily a rāgă, for its meaning may be confused and without appeal. The essential feature of a rāgă is its power of evoking an emotion that takes hold of the hearers like a spell.

The better all the notes that form a mode combine to express one definite mood, the more attractive the rāgă and the more powerful its magic. The mode must seize the mind and hold it as if enchanted. Then the mind "is charmed and becomes lost in it." (*Rāgă Vibodhă* 1, 4.)[119]

"A rāgă, the sages say, is a particular form of sound in which notes and melodic movements appear like ornaments and enchant the mind." (*Saṅg. Darp.* 2–1.)[120]

Rāgăs vary indefinitely. The number of rāgăs theoretically possible is almost limitless. In practice, however, only a few hundred rāgăs are generally used, but, as we have seen, their classification is often confused, the same rāgăs having different names in different provinces, and different rāgăs the same name. But, of course, this has very little importance musically.

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* "The word 'rāgă' is obtained by adding the suffix 'ghan' (which indicates 'doing') to the root 'rañj', 'to please'." (*Saṅg. Darp.* comm. on 2–1.)[117]

"That group of notes (svarăs) which charms is a 'rāgă': so say the wise."[118]

Moods, Colours and Notes

Each of the notes of the scale has its own kind of expression and a distinct psychological or physical effect, and so it can be related with a colour, a mood, a metre, a deity or one of the subtle centres (chakrăs) of the body. These correspondences are given an important place in all Sanskrit treatises on music. Since a complete list of them would be very lengthy, only the correspondences of notes with moods and colours will be given here as an example.

"Love (śhṛiṅgāră), laughter (hāsyă), compassion (karuṇā), heroism (vīră), wrath (raudră), fear (bhayānakă), disgust (bībhatsă), wonder (adbhută) and peace (śhānti) are the nine moods of dramatic art. . . .

Of these, for laughter and love, Madhyamă (fourth) and Pañchamă (fifth) are used.

In the heroic mood, in wrath and wonder, Ṣhaḍjă (tonic) and Pañchamă (fifth) (or Ṛishabhă, second);*

for compassion, Niṣhādă (Ni k., minor seventh) and Gāndhāră (Ga k., minor third);

in disgust and fear, Dhaivată (sixth);

in peace, Madhyamă (fourth)." (*Viṣh. Dharm.* III, 18.)[122]

"Ṣhaḍjă (C, the tonic) is bright like the petals of a lotus.
Ṛiṣhabhă (D) is like a parrot.†
Gāndhāră (modern Ga k., E♭) is golden.
Madhyamă (F) is like jasmin.
Pañchamă (G) is dark (or, of the colour that attracts).‡
Dhaivată (A) is yellow.
Niṣhādă (modern Ni k., B♭) is of all colours." (*Bṛihaddeśhī* I, 77, and *Nār. Śhik.* IV, 1–2.)[124]

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* The *Bṛihaddeśhī* says:
"Ṣhaḍjă (tonic) and Ṛiṣhabhă (second) in the heroic mood, in wrath and wonder." (*Bṛihaddeśhī* I, 84.)[121]

† The *Saṅgītă Ratnākară* (I, 3, 54) says that Ṛiṣhabhă (D) is tawny (Piñjaraḥ).

‡ "That which attracts is called 'Kṛiṣhṇă' (dark)."[123]

The Description of Rāgăs in Verses and Pictures

The correspondence of the notes with colours, emotions, deities and so on makes possible a graphic representation of the modes. And the rāgă as a whole determines a state of feeling which can also be expressed in poems or in pictures. But it must be remembered that, since many rāgăs have changed their form, these pictures and poems often no longer accurately represent the rāgă after which they are named.

All these verses are traditionally known to musicians, though they do not always know the names of the books from which they are taken. Most of the verses, later reproduced in the *Saṅgītă Darpaṇă*,* the *Chatvārimśhach'hată Rāgă nirūpaṇam*, the *Śhivă tattvă Ratnākară*, the *Rāgă Sāgară* and several other works, seem originally to have come from the work of Kohală now believed lost. Further verses are quoted, without reference, in the nineteenth-century *Rāgă Kalpă drumă*.

The Four Phases in the Development of a Rāgă

A rāgă is generally developed through four phases, called Ṣthāyī, Antarā, Sañchārī and Ābhogă.

I. The *STHĀYĪ* (The Pallavi of South Indian music) establishes the theme, starting from the middle tonic (middle Sa). It is focused on the sonant (vādī) and though it never rises above the B (Ni) of the middle octave, it descends as deeply as possible into the lower octave.

II. *ANTARĀ* (the Anupallavi of South Indian music) starts from the middle of the middle octave and develops mainly in that and the upper octave. It is focused on the consonant (samvādī).

III. *SAÑCHĀRĪ* (the Charaṇam of South Indian music) begins from the higher C (Sa) and moves freely in all three octaves.

IV. *ĀBHOGĂ* is a concluding variation, also starting, as a rule, from the higher C (Sa). In songs, it often contains the name of the composer.

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* In several of the verses describing the rāgăs, we have to follow the quotations of the *Saṅgītă Darpaṇă* given in the *Shivă tattvă Ratnākară* rather than the text of the available edition of the *Saṅgītă Darpaṇă* itself, which often seems corrupt.

In songs the sthāyī is sung again after each part.

In late medieval music, these four phases were rather differently divided. They were called udgrāhă (prelude), sthāyī (theme), sañchārī (variation) and muktāyī (conclusion).

Śhrī Nivāsă in his *Rāgă Tattvă. Vibodhă* describes them as follows:

"The melodic figures with which one begins are called udgrāhă (prelude). The fixed melodic figures which do not as a rule appear at the beginning or the end are known to experts as sthāyī (the theme). The mixed theme, with ascending [and descending] vocalization, is called sañchārī (variation). Where the mode comes to a rest is called samāpti (conclusion)."[125]

Styles of Singing or Playing

There are many distinct styles in which the variations of a rāgă may be sung or played. Some of the most important are here briefly described.

A. STYLES OF SINGING.

1. ĀLĀPĂ is the sober exposition of the theme in slow time, with portamentos but no elaborate ornaments.

2. SVARĂMĀLIKĀ, OR SVARĂ-GRĀMĂ, OR SA RI GA MA is Ālāpă in which the name of each of the notes is sung, as is sometimes done in the Western sol-fa system.

3. DHRUPADĂ is Ālāpă with words. It is solemn and religious in style, usually sung in slow time and using only the more sober rhythms (tālăs). It is the noblest and also the most difficult style of singing.

Bhāvă Bhaṭṭă in his *Anupă Saṅgītă Ratnākară* defines Dhrupadă as follows:

"Dhruvăpadă is traditionally known as a divine form of song that shines in the language and literature of the Middle Country. Composed of two or four sentences expressing the emotion of love, it is sung by both men and women. It consists of a poem set to the ālāpă of a rāgă with repetition of final syllables and of groups of syllables conveying different meanings. It has a metrical introduction in two verses, a prelude, a chorus, and a final stanza of noble styles." (*Anupă Saṅgītă Ratn.* I, 65–67.)[126]

4. JHORĂ is Ālāpă without portamentos. (Almost the whole of Western vocal music is in Jhoră.)

5. TANJHORĂ is Jhoră sung quickly.

6. KHĀṆḌĀRVĀṆĪ DHRUPADĂ is Jhoră sung with each note repeated several times as if the voice were shaking.

7. In KHYĀL simple ornaments are used, particularly ascending and descending vocalizations, trills and grace notes (gamakăs) and repeated groups of notes or melodic figures (tānăs). Khyāl is charming and light, often used for love-songs. It is usually sung in madhyă tālă (moderate tempo).

8. ṬAPPĀ is a very elaborate style of singing in which each note of the Dhrupadă prototype is delicately ornamented without, however, breaking or obscuring the general melodic line. It is usually sung in madhyă tālă.

9. ṬHUMRĪ combines Khyāl and Ṭappā, using all ornaments (gamakăs), and repeating each word or line in varied styles. It is very lively and adapted to pantomime and dancing. It is usually sung in madhyă tālă. It has only one sthāyī and one antarā.

10. TELLANĀS are sung rhythmically with the syllables (bols) used to represent the strokes of the drum.

11. DĀDRĀS are folk-songs in Dādrā tālă.

12. GHAZALS (of Persian origin) are love-lyrics sung as a sort of light popular Ṭhumrī. They consist only of an antară, with a simple melody.

13. BHAJAN is a religious popular song with a fixed tune accompanied by rhythmic instruments, often sung in mixed rāgăs.

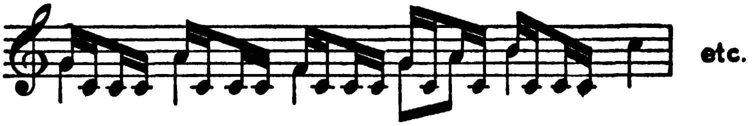
14. KĪRTAN, similar to Bhajan, is a succession of religious songs with changes of mood and rāgă, chiefly developed in Bengal.

B. STYLES OF PLAYING (ON STRINGED INSTRUMENTS).

1. VILAMPAT is the development of the theme in slow time with portamentos, etc. It corresponds with the Ālāpă in singing.

2. JHORĂ is played, on the vīnā, with the first two fingers only. It is the bare melody, each note separate, with neither portamento nor ornament.

3. JHALĀ is a rhythmic style in which each note of the melody is followed by a fixed number of rhythmic strokes on the tonic. For example:



4. THONK resembles Jhoră, but is played loud and fast.

5. THONK-JHALĀ is a mixture of Thonk and Jhalā.

6. In TARPARAN the strings are struck by rapid front and back strokes of the finger, very much as one does on the mandoline or the Russian balalaika.

CHAPTER VIII

DEFINITION OF THE RĀGĂS

The Fifteen Elements in the Definition of a Rāgă

FROM the technical point of view a rāgă is essentially a scale with a tonic and two axial notes, but it has further characteristics.

The different elements in the definition of a rāgă have been grouped here under fifteen main headings. Their application to each individual rāgă will be found in the second volume of this book.*

For the sake of clearness, these fifteen headings have not been kept in exactly the same order in the definition and in the application, but they can be traced by their numbers.

For the clear understanding of these fifteen elements we shall also have to explain a few technical points which have not so far been dealt with.

The Tuning of the Instruments (1)

The frets of the stringed instrument, or the tunable keyboard, must first be set to the proper intervals, the proper śhrutis. Both the exact śhrutis written above the notes, and their conventional notation for the Indian keyboard† are given with the notation.

The true tuning, by which the expression of the rāgă is defined, is always that of the descending scale. In rāgăs where there is a difference of śhruti in ascent and descent but the instrument used does not provide two different śhrutis, the scale tuned for descending can generally be used for ascending but never the tuning of the ascending scale for the descending one.

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* To be published shortly (1949).

† See p. 79.

Class (*Jāti*) (3)

The Indian scale is divided into seven regions or sections ruled by the seven notes, or svarăs, of the diatonic scale and named after them.

As we have seen already, if, in any mode, one or more notes be used from each division, the mode is called "complete" (sampūrṇă), but if one division is not represented, whatever the number of notes in the other divisions the mode is called hexatonic (ṣhāḍavă); if two divisions are not represented the mode is pentatonic (auḍavă).

This is very like the Greek division. Since both the chromatic and enharmonic genera have, by definition, a third in each tetrachord, that is one diatonic note omitted, they will necessarily be auḍavă, whereas modes having one tetrachord chromatic and the other diatonic will be ṣhāḍavă.

The classes obtained by thus grouping modes according to the number of their notes were known in ancient music as mūrch'hanās (see above, p. 101) but in later texts, particularly in the Eastern part of Northern India, they are called "jātis".

"Class (jāti), in rāgăs, is considered to be of three kinds—auḍavă of five notes, ṣhāḍavă of six, sampūrṇă (complete) of seven notes." (*Nāradă Samhitā* 2, 60; *Saṅg. Darp.* 2, 6.)[127]

Melodies comprising less than five notes cannot be called rāgăs (modes), but are mere "melodic figures" (tānăs).

"Combinations of two or three or four pleasing notes form melodic figures (tānăs): a rāgă must have five or more (notes)." (*Hṛidayă Prakāśhă.*)[128]

Besides the three main jātis, there are modes which, in addition to the natural seven, make use of one or both of the two intercalary notes Kākali Ni and Antară Ga. In ancient music these eight- or nine-note modes were known as the "intercalary modes" (sādhāraṇă).*

Though Viṣhṇu Digambar in his *Saṅgītă Tattvă Darśhakă* does not use the term jāti, he reproduces the ancient classification, adding the three kinds of rāgăs spoken of by Umāpati (quoted in *Rāgă Vibodhă*, comm. on 4, 3) and also by Mataṅgă (mentioned by Kallināthă and quoted in *Saṅgītă Darpaṇă* 2, 5). These are called: śhuddhă (pure), chhāyālagă (shadowed) and saṅkīrṇă (mixed).

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* See above, p. 101.

They are defined as follows:

A rāgă in which there are only unaltered notes is called "pure" (śhuddhă).

A rāgă is called "shadowed" (chhāyā-lagă) when it makes use of a few notes borrowed from another rāgă, provided they do not alter the mood, but, on the contrary, enhance it.

A mixture of several rāgăs is called saṅkīrṇă.

"According to Umāpati, a 'pure' rāgă charms by itself, a 'shadowed' rāgă with the help of others, a 'mixed' rāgă with the help of two." (*Rāgă Vibodhă* 4, 3.)[129]

"Sampūrṇă" means "complete", "ṣhāḍavă" means "of six". The word "auḍavă" has given rise to unnecessary speculation among Westerners insufficiently conversant with Hindu conceptions: Fox-Strangways, for example, in his *Music of Hindostan* (p. 122) suggests that it may have come from the name of a province where the pentatonic scale was invented. But the *Saṅgītă Darpaṇă* (comm. on 2–6), clearly explains the term:

"The derivation of the word 'Auḍavă' is as follows: Uḍavă is where the planets move, hence the 'sphere of space' (vyomă). This among the elements is the fifth (ether), thus it represents the number five. From this it is clear that the number of notes of the auḍavă (the ethereal scale) is five."[130]

A similar explanation is given in the *Śhivă tattvă Ratnākară*.

There are rules for the use of the jātis, in accordance with the symbolism of numbers:

"For celebrating battle, charm and beauty, in separation, or in depicting a character, the hexatonic (ṣhāḍavă) [class of modes] is recommended.

For destroying disease or enemies, dispelling fear or sorrow, in difficulty or in suffering, in forgiveness or when planets are unfavourable, auspicious words should be sung in the pentatonic scale." (*Śh. tat. Ratn.* VI, 8, 145–147.)[131]

The term jāti was also used in ancient and medieval music for mode-types:

"From intervals (śhrutis), the initial (tonic, grahă) and other notes (svarăs) brought together the mode-types result, therefore they are called 'jātis' (results)." (*Bṛihaddeśhī*, comm. on 1, 194.)[132]

"Jāti" in this sense has now been replaced by the term "thāṭ".

Group (2)

Some of the main rāgăs have, as their satellites, secondary modes with the same general characteristics and only minor differences. These are said to belong to the group of their parent rāgăs. For example, Prabhāt, Bangālă, Rāmăkalī, etc., belong to the Bhairavă group.

Certain books consider the chief modes masculine in character and call them "rāgăs", while the secondary modes the "rāgiṇīs", are said to be their wives, or even their "sons" (putrăs).

The male rāgăs, originally all pentatonic scales, are usually considered to be six in number, though some count seven, eight, or nine.*

"Bhairavă, Mālăkoshă, Hindolă, Dīpakă, Shrī rāgă and Meghă rāgă, these are the male rāgăs." (*Saṅg. Darp.* and *Sh. tat. Raṭn.* 6, 8, 44.)[133]

Ascent and Descent (*Ārohă, Avarohă*) (4)

The determining element in a mode, its scale or succession of notes, often differs in ascending and descending. Many modes are, for example, pentatonic (auḍavă) or hexatonic (ṣhāḍavă) in ascent and heptatonic (sampūrṇă) descending. Some have one or two of their notes natural (shuddhă) ascending and flattened (komală) in descent, and so on. But the true scale of a mode, that by which its expression is defined, is always the descending scale. In all the ancient modal systems, the scale is given downwards from the higher tonic (Sa): to define a mode by giving its ascending scale first is a comparatively recent practice. Ascending scales always have an exploratory character, while descending scales, in any music, allow greater precision and clearer differentiation and should therefore always be taken as the standard.

In those parts of India where archaic forms of speech and song have been preserved (as, for example, in certain valleys of the Himalayas) songs and the playing of instruments always start from the upper tonic in a descending scale.

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* The *Saṅgītă Makarandă* speaks of twenty-one male rāgăs. (3–53, etc.)

The Sonant (*Vādī*) (5)

वादी स्वराणां राजा स्यात्

"The sonant (vādī) is the king of notes." (*Saṅg. Mak.* 2–7.)

Besides the tonic (the Sa), always fixed, each rāgă has a predominant note from which all variations begin and in which they end: it is always accentuated and bears long pauses. This main note is called vādī (that which speaks). The expression of the vādī is the predominant expression of the rāgă: its character determines the mood.

"The chief element in which the power lies of bringing out a particular mood, a rāgă, is the sonant (vādī)." (*Saṅg. Darp.* 1–68.)[134]

"The sonant (vādī) is the note most used while playing; it is the king (of the melody)." (*Rāgă Vibodhă* 1, 37.)[135]

The commentary on the *Rāgă Vibodhă* adds: "the sonant (vādī), being constantly heard, dominates the melody. Because it explains and heralds the mode, it is called vādī, (that which speaks)."

The "Consonant" (*Samvādī*) (6)

मन्त्री संवादिरुच्यते

"The consonant is like a minister." (*Saṅg. Mak.* 2, 7.)

Corresponding notes in the two tetrachords into which the octave is divided always have similar expressions. A fourth or a fifth above the vādī another note will therefore be found that responds to it, playing in the upper tetrachord a similar, though less important *rôle.* This note is called "samvādī" (consonant).

"The nature of the 'consonant' (samvādī) is to reinforce the 'sonant' (vādī) by which the expressiveness of the mode is engendered." (*Bṛihaddeśhī,* comm. on 1, 63.)[136]

Very rare exceptions apart, the samvādī is always a fifth or a fourth above the vādī. This corresponds with an interval of twelve or eight śhrutis.

"The notes that have between them an interval of twelve or eight śhrutis (perfect fifth and fourth) are called 'consonant' (samvādī). They are like ministers." (*Rāgă Vibodhă* 1, 37.)[137]

The Commentary adds: "Samvādīs . . . sustain the . . . impression created by the vādī, just as ministers carry out the order of the king."

"The notes between which there are eight śhrutis (perfect fourth) or twelve śhrutis (perfect fifth) are said, in relation with one another, to be consonant (samvādī). Such are Ni and Ga (B and E) or Ri and Dha (D and A)." (*Saṅg. Darp.* 1, 69–70.)[138]

Rāgăs in which the samvādī is a fifth above the vādī are called "pañchamă samvādī" (having a fifth as main consonance); those in which the samvādī is a fourth above the vādī are called "madhyamă samvādī" (having a fourth as main consonance). Pañchamă samvādī rāgăs have a clear, active, brilliant expression; madhyamă samvādī rāgăs are passive, dormant, soft.

Assonant (Anuvādī)

अनुवादी च भृत्यवत् ।

"The 'anuvādi' is like a servant." (*Saṅg. Mak.* 2–7.)

The notes of a mode that are neither "sonant", nor "consonant" are called "assonant" (anuvādī):

"By those who see the subtle cause of things the note that is neither the sonant nor the consonant and yet is not 'dissonant' (vivādī) is called assonant (anuvādī)." (*Saṅgītă Pārijātă*, 81–83.)[139]

Dissonant (Vivādī)

स्वरो विवादी वैरी स्यात्

"Dissonant (vivādī) notes are enemies." (*Saṅg. Mak.* 2–7.)

Notes that do not belong to a rāgă or, if they do, are used in defiance of its rules are called "dissonant" (vivādī): They destroy the expression.

"That which in a given mode breaks the charm is undoubtedly 'dissonant' (vivādī) from the notes of that mode. . . . This vivādī is like an enemy." (*Saṅgītă Pārijātă*, 83–84.)[140]

"Melodic variations that would introduce a vivādī note should always be avoided."[141]

The Relation between Tuning and Scale

It should be noted that there is a strict correspondence between the tuning of the different notes, the ascending and descending scales and other peculiarities of a rāgă. Certain śhrutis are related by such intervals that it is impossible to play them in succession. If, therefore, the expressions they represent have to be brought together to constitute the mood of a certain rāgă, their use may require melodic artifices so that they may never be in direct succession. The tuning, the ascending and descending notes, the sonant and consonant, the theme and the expression form a homogeneous entity which very often, for mathematical as well as acoustic reasons, simply cannot be other than it is. Rāgăs can therefore never be considered as the invention of some inspired artist: they can at best only be discovered as we discover astronomical or other physical laws that represent some aspect of the universe in which we live—laws which it is not in our power to modify.

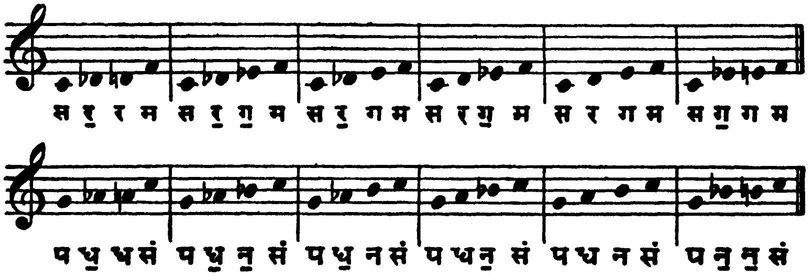
Tetrachords and Mode-types (Thāṭs) (8 and 12)

As we have already seen, Indian, like Greek and Arab music, does, though not very generally nowadays, divide the scale into two tetrachords or groups of four notes, ruled respectively by the "sonant" (vādī) and the "consonant" (samvādī): the lower tetrachord C D E F (Sa Ri Ga Ma) is called pūrvāṅgă (first limb), the higher tetrachord G A B C (Pa Dha Ni Sa) uttarāṅgă (higher limb). This is not an artificial division but corresponds with a physical fact, for, as we have said, there is great similarity of expression between the corresponding notes of the two tetrachords. In many rāgăs the division of the two tetrachords is identical.

In analysing each rāgă we shall give, with their ratios, the different intervals that arise between the notes of each tetrachord.

Indian music envisages six main types of tetrachord—corresponding with a perfect fourth, and six secondary types corresponding with an augmented fourth. These are obtained in the following way:

If we take the twelve notes of the chromatic harmonic and divide them into lower and upper tetrachords (leaving between them F♯, Ma tīvră), we see that in each case six different types of tetrachord are possible:


स र̲ र म स र̲ ग̲ म स र̲ ग म स र ग̲ म स र ग म स ग̲ ग म
प ध̲ ध सं प ध̲ न̲ सं प ध̲ न सं प ध न̲ सं प ध न सं प न̲ न̲ सं

If we combine each of the possible lower tetrachords with each of the possible higher ones, we obtain thirty-six different scales of seven notes. And if, in each of these thirty-six scales, we then replace F (Ma) by F♯ (Ma tīvră), we obtain thirty-six further scales. The total number of theoretically possible basic scales is thus seventy-two. This classification is still used in South India where such scales are called melăs or melakartās.* The theory of them is explained by Paṇḍit Veṅkaṭă Makhin, the seventeenth century systematizer of South Indian music, who, in the fourth chapter of his *Chaturdaṇḍī Prakăśhikā*, claims to have invented this mode of classification, though it is really a more ancient system already spoken of in the *Saṅgītă Sāră* of Vidyāraṇyă (1320–1380).

Since many of these scales are not in use nowadays in Northern music, this classification is usually replaced by a small number of mode-types or thāṭs (usually ten) which correspond with the approximate array, or setting, of the frets on the sitar. This artificial classification—musically inexact, for it neglects the differences of śhrutis—merely helps the player to remember the approximate tuning of a mode.

The *Rāgă Vibodhă* says (comm. on 1, 8):

"The particular arrangements of the notes (svarăs) into common scales (melăs) under which modes (rāgăs) can be grouped, are spoken of as 'ghāṭăs' [or thāṭs]."[143]

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* The term "melă" can however be used for any sort of mode-type. "A melă is a group of sounds from which rāgăs (modes) will be made manifest." (*Saṅgītă Pārijātă.*)[142]

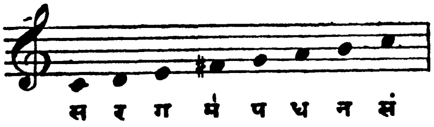
These "thāṭs" or mode-types should not be mistaken for the rāgăs or modes that bear the same names, for the latter may have more or fewer notes and they correspond with an accurate tuning, whereas the tuning of the mode-types is only approximate.

The ten thāṭs or mode-types are given as follows:

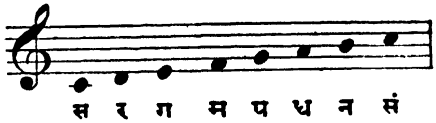
"The first is Kalyāṇī (Kalyāṇă) melă, the second Velāvalī (Bilāval), the third Khammājă, the fourth Bhairavă, the fifth Bhairavī, the sixth Āsāvarī (our Yavanăpurī), the seventh Toḍī, the eighth Pūrăvī (our Śhrī), the ninth Mārăvā, the tenth Kāfi. Such are the ten mode-groups (melăs) from which rāgăs arise." (Quoted in *Śhrīmallakṣhyăsaṅgītam* II, 1, 19–21.)[144]

They are usually given as follows:

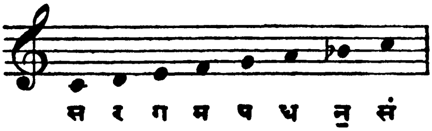
I Kalyāṇă



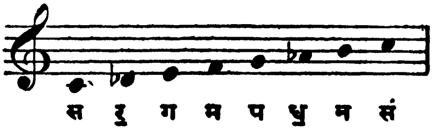
II Bilāval



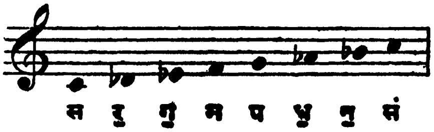
III Khammājă



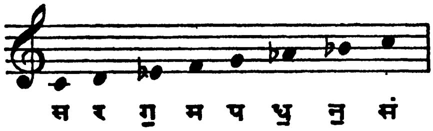
IV Bhairavă



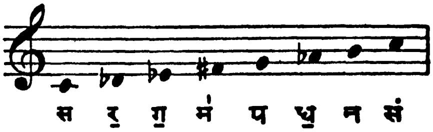
V Bhairavī



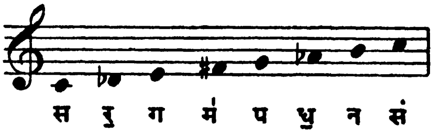
VI Yavanăpurī (Bhātkhaṇḍe's *Āsāvarī*)



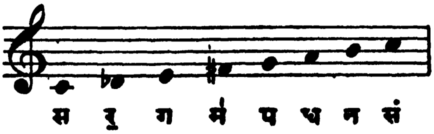
VII Toḍī



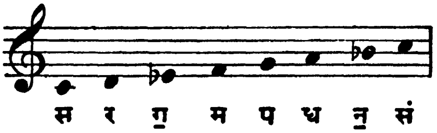
VIII Śhrī



IX Mārăvā



X Kāfī



The eighth thāṭ, Śhrī, is given by Bhātkaṇḍe as Pūrăvī, but since the Pūrăvī we give here has an A natural (śhuddhă Dha), its name could not be given to a thāṭ containing an A flat (Dha komală). About the scale of Śhrī there is no divergence of opinion.

The Number of Rāgăs

In each of the seventy-two possible basic scales of seven notes we can have: one mode using the seven notes in ascent and in descent; six different modes using the seven notes in ascent and six notes in descent; fifteen different modes using the seven notes in ascent and five notes in descent; six different modes using six notes in ascent and seven notes in descent;

fifteen different modes using five notes in ascent and seven notes in descent; thirty-six different modes using six notes in ascent and six notes in descent; ninety different modes using six notes in ascent and five notes in descent; ninety different modes using five notes in ascent and six notes in descent; two hundred and twenty-five different modes using five notes in ascent and five notes in descent.

This gives a total of 484 modes in each scale, or 64,848 modes in the seventy-two scales.

If we now consider that there are modes of which the ascending and descending scales are different, modes which combine several scales, etc., we see that the number of possible modes is practically unlimited. It would be difficult in a lifetime to hear them all, even once. Ahobală speaks of 18,678 modes of seven notes, 31,050 modes of six notes and 17,505 modes of five notes in the Ma grāmă alone.

Śhrī Kṛiṣhṇānandă Vyāsă in his *Rāgă Kalpadrumă* (Introduction, p. 1) writes:

"For the sake of the 16,108 milkmaids, the Dark Lord, Śhṛī Kṛiṣhṇă, took the same number of shapes. Each of the milkmaids for each of the Kṛiṣhṇăs sang a different rāgă in a different rhythm, thus giving birth to 16,108 modes. These rāgăs and rāgiṇīs later became famous in the earthly world."[145]

Time of Playing (7)

एवं कालविधिं ज्ञात्वा गायेद्यः स सुखी भवेत् ॥
रागावेलाप्रगानेन रागाणां हिंसको भवेत् ।
यः शृणोति स दारिद्री आयुर्नश्यति सर्वदा ॥

> "One who sings knowing the proper times remains happy. By singing rāgăs at the wrong time (of day) one ill-treats them. Listening to them, one becomes impoverished and sees the length of one's life reduced." (*Saṅg. Mak.* 23–24.)

The cycle of the day corresponds with the cycle of life which also has its dawn, its noon, its evening. Each hour represents a different stage of development and is connected with a certain kind of emotion. This cycle of sounds is ruled by the same mathematical laws as all other cycles. This is why there are natural correspondences between certain hours and the moods evoked by certain musical modes. Played at the proper time, musical modes develop naturally in favourable conditions. Orthodox musicians in India never play a rāgă at any other than its proper time, for at the wrong hour it could never be developed so perfectly, nor could it so greatly move an audience. The organist who, in the West, played a funeral march at a wedding would, to say the least, appear lacking in taste. In the same way the Indian musician who, disregarding the surroundings and the mood of his hearers, plays a morning mode in the evening appears utterly lacking in sensibility.

There are certain characteristics by which a rāgă shows at what time it should be played. Rāgăs to be played between midday and midnight have their sonant (vādī) in the lower tetrachord (pūrvă aṅgă), C to F (Sa to Ma). They are called "Pūrvă rāgăs". Rāgăs to be played between midnight and midday have their sonant (vādī) in the upper tetrachord (uttară aṅgă), G to upper C (Pa to upper Sa). They are called "Uttară rāgăs".

Modes that correspond with crucial moments (sunrise, sunset, midday, midnight, solstice, equinox, etc.) often use both F♯ and F♮ (Ma tīvră and Ma śhuddhă).

Besides these, Bhātkhaṇḍe indicates the following time-characteristics, which are very generally followed.

(1) Modes sung at sunrise and sunset are known as "samdhi-prakāśhă (twilight) rāgăs". Most of them include Ri and Dha komală (D and A flat).

(2) Modes with Ga and Ni komală (E and B flat) usually belong to the middle of the day or night.

(3) Modes with Ri, Ga Dha and Ni śhuddhă (D, E, A and B natural) are usually played after twilight (samdhi-prakāśhă)—in the first quarter of morning or night.

(4) Modes sung before twilight—in the last quarter of day or night—insist on the tonic, the fourth and the fifth (Sa Ma and Pa).

The rāgăs of evening twilight never omit Ga and Ni (E and B), and the rāgăs of morning twilight never omit Ri and Dha (D and A).

These rules are not, however, absolute.

Scale-Types (*Greek Genus*) (9)

The ancient Greek classification of the scales into three genera, Enharmonic, Chromatic and Diatonic, has a dual meaning. The fundamental one, used by the Pythagoreans, referred to the three fundamental divisions of the octave into twenty-two (the Greeks, like the South Indians, made it twenty-four), twelve and seven (or nine).*

Later on, this classification was taken to refer to typical modes built upon such genera.

According to the interpretation of this later aspect of the Greek genera which we find in Arabic writers, a mode is called *diatonic* if each tetrachord has two full tones, *chromatic* if each has an interval of a minor third (three half-tones), *enharmonic* if each has an interval of a major third (four half-tones).

Though this kind of classification is not usually followed by Indian musicians, it is indicated here to facilitate comparison with other systems.

Characteristics and Expression (10 *and* 11)

Certain rāgăs have peculiarities of scale or of tuning that modify their expression.

The expression of a mode is the sum of the expressions of its different notes, each depending upon its individual relation with the tonic. According to the theory of the śhrutis, many notes cannot have the same kind of expression and, therefore, in a scale, there are necessarily contrasts. This is why the most intense rāgăs have often incomplete scales, for they suppress as far as possible notes that would not support the predominant expression.

Thus a very sad rāgă will leave out the fifth (Pa) because a fifth always expresses sunshine, joy. A very passionate rāgă will have no natural fourth (śhuddhă Ma) since that always expresses peace, serenity.

These contrasts between the notes are a further reason why the rāgăs considered masculine in ancient music were always pentatonic, for a pentatonic scale gives a much stronger and more coherent expression than an heptatonic scale which necessarily shows contrasts, indecisions, subtleties, and so is more feminine in character.

When sounds are used in the treatment of mental or physical disease, the number of notes must be further reduced to a few sounds constantly heard, so as to create an overwhelming impression in one direction only.

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* See p. 72.

Representation of Intervals by Ratios

In practice, so as to be easily understood, for each interval we shall use the nearest simple ratio sufficiently accurate to represent it. We shall always represent a major tone by 9/8, a minor tone by 10/9, a major half-tone by 16/15, a limma by 256/243, a minor half-tone by 25/24, and so on, though these figures may sometimes be slightly inaccurate. For example: though the major tone is the sum of a major half-tone and a limma we shall write it:

16/15 × 256/243 = 9/8, which is incorrect, for the major half-tone would then become the "apotome" $\frac{2187}{2048}$; or, if we keep the major half-tone as 16/15, the limma would be 135/128, because we have either $\frac{2187}{2048} \times \frac{256}{243} = \frac{9}{8}$ or $\frac{16}{15} \times \frac{135}{128} = \frac{9}{8}$.

Similarly, the minor tone is equal to 2 limmas, and we therefore represent it by $\frac{256}{243} \times \frac{256}{243} = \frac{10}{9}$ — incorrect, for $\frac{256}{243} \times \frac{2430}{2304} = \frac{10}{9}$. But since, actually, $\frac{256}{243} = 22.63$ sav.*, $\frac{135}{128} =$ 23.12 sav. and $\frac{2430}{2304} = 23.13$ sav. are practically equivalent; and since, from the point of view of expression, the difference is non-existent, being in the first case half a savart and in the second 1/100th of a savart (that is to say, in one case 1/11th of a comma or 1/100th of a tone, and, in the other case, 1/10,000th of a tone), and since, again, the simple ratio represents the interval quite clearly, it will be easy for the student who so desires to find out for himself the exact ratios.

Śhrutis (Analysis of Expression) (13)

As we have already said, the expression of a mode is the sum of the expressions of its different notes, defined by their relation with the tonic. In each rāgă, each of the different notes has a definite expression. This is very evident if their pitch is accurate and without variation.

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* See first footnote to page 47.

The expressions given in our notation for each note of each rāgă have been compiled experimentally and verified over and over again, players and hearers being always in perfect agreement as to the meaning of the notes.

There may, however, remain some slight inaccuracies in the accidental śhrutis used for particular notes in certain melodic figures. There may also be different schools for the *expressive* interpretation of the rāgăs. Only long practice and experiment by different musicians would allow us to correct and perfect every detail in the use of the accidental śhrutis appearing in each rāgă.

Theme (*Rūpă*) (14)

For each rāgă there are a few very typical groups of notes from which it can at once be recognized. These form the main theme (rūpă).

Outline (15)

It is impossible to write down the ever-changing development of a rāgă. We have to limit ourselves to noting in its simplest form, the first part of an average "exposition of the theme" (ālāpă). From this, however, the student should be able to perceive the complete form of the rāgă and so, following the rules, proceed to the variations.

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Second Period

Dattilam (of Dattilă-āchāryă) (mentioned in Nāṭyă Śhāstră). Trivandrum Sanskrit Series, 1930	Dattilă
Saṅgītă Makarandaḥ (of Nāradă). Baroda, 1920	Saṅg. Mak.

Chatvārimśhach'hată Rāgănirūpaṇam (of Nāradă). Bombay, 1914 ... ... Chat. Rāgă.
Amară Koṣhă (of Amară Simhă) second or third century A.D. (with commentaries: Amarăkoṣhodghāṭană of Kṣhīrasvāmin and Tīkāsarvasvă of Sarvānandă).
Kuḍimiyamālai Inscription (Pudukottai). Seventh century.

Third Period

Mānasollāsă or Abhilāṣhārthă Chintāmaṇi (an encyclopedia with chapter on music of Someśhvară Devă, 1131 A.D.) in course of publication. Baroda.
Rāgă Taraṅgiṇī (of Lochană Kavi, 1160 or 1700 A.D.). Bombay, Darbhanga ... ... Rāgă Tar.
Saṅgītă Samayăsāră (of Pārśhvă Devă, twelfth century). Trivandrum Sanskrit Series, 1925. Saṅg. Sam.
Bhāvă Prakāśhanam (of Śhāradātanayă, twelfth century) (ch. 7). Baroda, 1930 ... Bhā. Prak.
Saṅgītă Ratnākară (of Śhārṅgadevă, thirteenth century). Ānandāśhramă, Poona, 1897; and Adyar Library, 1943 ... ... Saṅg. Ratn.
  (Commentary of Kallināthă, fifteenth century) ... ... Kal. comm.
  (Commentary of Simhabhūpālă, fourteenth century) Adyar ed. only ... Simh. comm.
Bṛihaddharmă Purāṇă (ch. 44). Calcutta ed. Bṛih. P.

Fourth Period

Abhinavă tālă mañjarī (of Appā Tulsi, modern). Bombay, c. 1920.
Abhinavă rāgă mañjarī (of Viṣhṇu Śharmā (Pt. Bhātkhaṇḍe) modern). Bombay, 1921.
Anupă Saṅgītă Aṅkuśhă (of Bhāvă Bhaṭṭă, seventeenth century). Bombay, c. 1916.
Anupă Saṅgītă Ratnākară (of Bhāvă Bhaṭṭă, seventeenth century). Bombay, c. 1916.

Anupă Saṅgītă Vilāsă (of Bhāvă Bhaṭṭă, seventeenth century). Bombay, 1921.

Aṣhṭottaraśhată tālălakṣhaṇam. Bombay, early twentieth century.

Bāhattară-melăkartā (of Veṅkaṭa Makhin, c. 1620 A.D.). Adyar, 1938.

Chaturdaṇḍī Prakāśhikā (of Veṅkaṭă Makhin, c. 1620 A.D.). Madras, 1934.

Hṛidayă Kautukă (of Hṛidayă Nārāyaṇă, c. 1667 A.D.). Bombay, c. 1920.

Hṛidayă Prakāśhă (of Hṛidayă Nārāyaṇă, c. 1667 A.D.). Bombay, c. 1920.

Nartană Nirṇayă (of Puṇḍarīkă Viṭṭhală, sixteenth century). Bombay, early twentieth century.

Rāgă Chandrikā (of Appā Tulsi, modern). Bombay, 1911.

Rāgă Kalpadrumă (of Kṛiṣhṇānandă Vyāsă). In Bengali and Hindi scripts, Calcutta, 1842.

Rāgă-Kalpadrumāṅkură (of Appā Tulsi, modern). Bombay, 1914.

Rāgă Lakṣhaṇam (of Veṅkaṭă Makhin, c. 1620 A.D.). Madras, early twentieth century.

Rāgă Mālā (of Puṇḍarīkă Viṭṭhală, sixteenth century). Bombay, c. 1916 (Mss. Poona).

Rāgă Mañjarī (of Puṇḍarīkă Viṭṭhală, sixteenth century). Bombay, c. 1916.

Rāgă tattvăvibodhă (of Śhrī Nivāsă, late seventeenth century). Bombay, c. 1916.

Rāgă Vibodhă (of Somănāthă, 1610 A.D.). Lahore, 1910; Madras 1945.

Rasă Kaumudī (of Śhrī Kaṇṭhă, eighteenth or nineteenth century).

Sāhityă Saṅgītă Nirūpaṇam (same work as Saṅgītă Mālā, Mss dated 1778). Delhi, 1817.

Saṁgrahă Chūḍā-maṇi (of Govindă). Adyar, 1938.

Saṅgītă Ādityă. Baroda, early twentieth century.

Saṅgītă Darpaṇă (of Dāmodară Miśhră, 1625 A.D.). Calcutta, 1880. Saṅg. Darp. (abbreviation).

Saṅgītă Gaṅgā dharaṇă (of Naṅgarājă). Belgaum, 1936.

Saṅgītă-kṛitayaḥ (of Rāmă Varmā Mahārājă). Trivandrum, 1932.

Saṅgītă Pārijātă (of Ahobală, thirteenth or seventeenth century). Calcutta, 1884.

Saṅgītă Sampradāyă Pradarśhinī (a compilation from Veṅkaṭă Makhin). Ettayapuram, early twentieth century.

Saṅgītă Sārāmṛitam (of King Tulajendră Bhonsale of Tanjore, 1729–35). Madras Music Acad., 1942.

Saṅgītă Sāră Saṅgrahă (of Sourindro Mohan Tagore). Calcutta, 1875.

Saṅgītă Sudhā (of King Raghunāthă of Tanjore, 1614 A.D.). Madras Music Acad., 1940.

Saṅgītă Sudhākară (of Appā Tulsi, modern). Bombay, 1917.

Ṣhaḍrāgă Chandrodayă (of Puṇḍarīkă Viṭṭhală, sixteenth century). Bombay, early twentieth century (Mss. Poona).

Śhivă tattvă Ratnākară (an encyclopedia of Bāsavă Rājā, 1798–1815). Madras, 1927. Śh. tat. Ratn. (abbreviation).

Śhrimallakṣhyasaṅgītam (a compilation from older texts). By Viṣhṇu Śharmā (Pt. Bhātkhaṇḍe). Bombay, 1910.

Svară-melă-kalā-nidhi (of Rāmāmātyă, 1550 A.D.). Annamalai University, 1932. Svar. Kal. (abbreviation).

II. SANSKRIT WORKS, UNPUBLISHED

From the following libraries:

Adyar Library
Central Library, Baroda
Maharajah of Benares
Maharajah of Bikaner
Royal Asiatic Society, Calcutta
Government Sanskrit College, Calcutta
Maharajah of Kashmir
India Office Library, London
Govt. Oriental Library, Madras
Govt. Oriental Library, Mysore
The Bodleian Library, Oxford
Palace Library, Tanjore
Palace Library, Trivandrum
Bhandarkar Oriental Institute, Poona, etc.*

Abhilaṣhitārthă chintāmaṇi (of king Someśhvară, 1131 A.D.), an encyclopedia with a large section on music. (Mysore, Baroda.)

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* A few known works often considered lost but which Mr. O. C. Gangoly (in *Rāgăs and Rāginīs* London, Bombay 1948) says he has consulted are mentioned here with due reference.

Abhinavă-Bharată-sāră (Mysore).
Abhinavă-Bhārati (of Abhinavă Guptă) (Madras, Trivandrum). Same work as Nāṭyă Vedă Vivṛitti.
Ādi-Bharată (Mysore, Tanjore) Telugu script. Incomplete.
Ānandă-(sañ) jīvană or
Ānandă Sañjīvanī Saṅgītă (of Madanăpālă, 1528) (Bikaner, Calcutta).
Aṅgahāră Lakṣhaṇă (Trivandrum).
Arjunādimată sāră (of Śhuddhă Sattvă Veṅkaṭāchāryă) (Madras). Incomplete.
Arjună Bharată (of Arjună) (Tanjore). Incomplete.
Aumapatam Gītă Śhāstram (later than ninth century) (Madras). Incomplete.
Bālă-Rāmă-Bharată (of Bālărāmă Kulaśhekhară Varmā, 1798–1810) (Madras, Trivandrum).
Bharată-arṇavă (of Nandikeśhvară) (Madras, Tanjore). Same work as Nandi Bharată.
Bharată-arṇavă-saṅgrahaḥ (Granthă script) (Tanjore).
Bharată-arthă Chandrikā (of Nandikeśhvară) with Telugu comm. (Madras).
Bharată Bhāṣhyă (of Nānyă Devă, twelfth century) (Poona).
Bharată-Gānă-śhāstră (Calcutta).
Bharată Lakṣhaṇam (Tanjore). A late compilation.
Bharată nāmă Dīpakă Nādă Śhāstram (Nepal).
Bharată Sarvārthă Granthă (of Mudumbai Narasimhachariar) (Madras).
Bharată-sāră (Mysore).
Bharată Śhāstră (anon.) (India Office).
Bharată Śhāstră (of Raghunāthă) (Tanjore).
Bharată Śhāstră (of Tulajādhipă) (Tanjore). A late compilation.
Bharată Śhāstră Granthă (of Lakṣhmīdhară, sixteenth century) (Poona).
Dattilă-Kohalīyam (Tanjore).
Dakṣhiṇī Rāgă Mālā (Poona). See Rāgă Mālā.
Gamakă Mañjarī (Bikaner).
Gānă Śhāstră (Calcutta).
Gāndharvă Vidyā or Vedă (Calcutta).
Gītālamkāră (attributed to Bharată) (Poona).
Gītă Prakāśhă (sixteenth century) (Madras). Oriya script.
Gītă-saṅgrahă (Calcutta).
Gītă-sāră (Calcutta).

Hanumantă-Rāgă-Vibhāṣhā (Bikaner).

Jātiḥ (Tanjore).

Kalpataruṭīkā (of Gaṇeśhă Devă) (Bikaner). Same work as Subodhinī.

Kohală Rahasyă (Madras). Incomplete.

Kohalīyă Abhinayă Śhāstră (Madras). With Telugu comm.

Mānă Manorañjană (of Māyā Śhaṅkară) (Baroda).

Mānasollāsă or Abhilāṣhārthă Chintāmaṇi (of Someśhvară Devă, 1131 A.D.) (Baroda).

Mataṅgă Bharată (of Lakṣhmaṇāryă) (Tanjore). An incomplete work on Mataṅgă Bharată.

Melādhikāră Lakṣhaṇam (Tanjore). Not earlier than eighteenth century.

Melă-rāgă-svară saṅgrahă (Oppert's catalogue of South India).

Mukhādi Chālī (Bikaner).

Muralī Prakāśhă (of Bhāvă Bhaṭṭă, c. 1700) (Bikaner).

Nandi Bharată (of Nandikeśhvară) (Mysore). Same work as Bharată-arṇavă.

Nādă Dīpakă (Benares).

Naṣhṭoddiṣhṭă Prabodhakă Dhraupadă Tīkā (of Bhāvă Bhaṭṭă, c. 1700) (Bikaner).

Nāṭyă Sarvasva Dīpikā (of Rāmānandă yogin) (Poona).

Nāṭyă Chūḍāmaṇi (of Somanāryă, c. 1650) (Madras).

Nāṭyă Lochană (ninth century) (O.C. Gangoly's bibliography).

Nāṭyă Vedă (Trivandrum).

Nāṭyă Vedă Āgamă (of Tulajă rājā, c. 1729–35) Telugu script (Tanjore). Incomplete.

Nāṭyă Vedă Vivṛitti (Trivandrum, Madras, Poona, Benares). Abhinavă Guptă, tenth century comm. on Nāṭyă Śhāstră. Same work as Abhinavă-Bhārati.

Nṛittă Ratnāvalī (of Jayăsenă, c. 1253 A.D.) (Calcutta, Tanjore).

Nṛittālă Purāṇă (Madras).

Nṛityă-adhyāyă (of Aśhokă Mallă) (Bikaner).

Nṛityă Nirṇayă (attributed to Puṇḍarīkă Viṭṭhală, c. 1590) (Tanjore).

Oḍḍiśhă Mahāmantrodayă (Madras). Same work as Tālă Vidhānă.

Pañchamă Sāră Samhitā (of Nāradă) (Calcutta) (Mss dated 1440 A.D.).

Rāgă bodhă vivekă (of Somă-nāthă) (Adyar).

Rāgă Chūḍāmaṇi (Calcutta).
Rāgă Dhyānă (Bikaner).
Rāgādivichāraḥ (Tanjore).
Rāgă Kāvyă Ratnă (Bikaner).
Rāgă Mālā (of Jīvarājă Dīkṣhită) (Poona, Calcutta).
Rāgă Mālā (of Kṣhemakarṇă) (Oxford, Bikaner).
Rāgă Mālā (of Meṣhakarṇă) (Calcutta) (MSS. dated 1509 A.D.).
Rāgă Mālā (Dakṣhiṇī) (Poona).
Rāgă Lakṣhmaṇi (India Office).
Rāgă Pradīpă (Madras).
Rāgă Prastāră (Tanjore).
Rāgă rāgiṇī svarūpānī (Poona).
Rāgă Ratnă (of Māṇikyă) (Calcutta).
Rāgă Ratnākară (of Gandharvă Rājă) (Tanjore).
Rāgārṇavă (Anonymous, earlier than 1300) (O. C. Gangoly's bibliography).
Rāgārṇavă nirūpaṇam (Madras).
Rāgă sāgaram (a dialogue between Nāradă and Dattilă) Telugu script (Madras).
Rāgă Sārāvalī (Benares).
Rāgă tattvă Vichāră (of Śhrīrāmă Mallă) (Bikaner).
Rāgă Varṇă nirūpaṇam. Telugu script (Madras).
Rāgă vibodhă vivekă (Bikaner).
Rāgă Viṣhayă (Madras).
Rāgotpatti (Oppert's catalogue of South India).
Rāghavă Prabandhă (Tanjore).
Ratnākară Vyākhyā (Mysore).
Ratnă-mālā (of Jāthară Bhūpati) (Bikaner).
Ratnă mālā (of Kṣhemakarṇă) (Bikaner). Same work as Rāgă Mālā.
Rāmă Kautuhală (of Rāmă Kṛiṣhṇă Bhaṭṭă) (Bikaner).
Rasārṇavă Sudhākară (Trivandrum).
Saṅgānă Sāgară (of Śhubhākară, 1308 A.D.) (Calcutta).
Saṅgītă-Adhyāyă (Madras).
Saṅgītă Amṛită (of Kamală Lochană, fifteenth century?) (Aufrecht's cat.).
Saṅgītă Anupă Rāgă Sāgară (Bikaner).
Saṅgītă Bhāskară (of Vaṅgamaṇi, seventeenth century) (Nepal).
Saṅgītă Chandră (of Abhilasă, seventeenth century) (Nepal).
Saṅgītă Chandrikā (of Mādhavă Bhaṭṭă, earlier than 1614) (Tanjore).

Saṅgītă Chintāmaṇi (of Vemă Bhūpālă, fourteenth century) (Trivandrum).

Saṅgītă Chintāmaṇi (of Kamală Lochană, fifteenth century) (Calcutta, Tanjore).

Saṅgītă Chūḍāmaṇi (of Kavi Chakravarti) (Baroda).

Saṅgītă Chūḍāmaṇi (of Haripālă Mahīpati) (Mysore).

Saṅgītă Chūḍāmaṇi (Trivandrum).

Saṅgītă Dāmodară (of Śhubhākară, or Śhukambhară) (Library of Kṛishṇanagar, Bengal).

Saṅgītă Darpaṇă (of Haribhaṭṭă) (Bikaner, Madras, Tanjore).

Saṅgītă Kalānidhi (of Haribhaṭṭă, seventeenth century) (N.W. Province cat.).

Saṅgītă Kalpă Drumă (Calcutta).

Saṅgītă Kalpă Latā (Calcutta).

Saṅgītă Kalpă Taru (Bikaner).

Saṅgītă Kāmadaḥ (Adyar). Oriya script.

Saṅgītă Kaumudī (of King Sanasenă) (Madras).

Saṅgītă Kautukă (Calcutta).

Saṅgītă Lakṣhaṇă (Mysore).

Saṅgītă Lakṣhaṇa Dīpikā (of Gauraṇāryă) (Mysore).

Saṅgītă Makarandă (of Vedă, seventeenth century) (Bikaner, Poona, Tanjore).

Saṅgītă Mālā (MSS. dated 1778). Same work as Sāhityă Saṅgītă Nirūpaṇam, publ. Delhi, 1817.

Saṅgītă Mīmāṅsā. Same work as Saṅgītă Rājă.

Saṅgītă Muktāvalī (of Devendră, c. 1420) (Bikaner, Tanjore).

Saṅgītă Nārāyaṇă (of Nārāyaṇă Devă) (Kashmir, Oxford).

Saṅgītă Nārāyaṇă (of Puruṣhottamă Miśhră) (Calcutta).

Saṅgītă Nārāyaṇă (of King Nārāyaṇă, eighteenth century) (Madras).

Saṅgītă Nṛityă (of Śhārṅgadevă Suri) (Oudh cat.).

Saṅgītă Nṛityākāră (of Bharatāchāryă) (Oudh cat.).

Saṅgītă Padyāvalī (Mysore).

Saṅgītă Puṣhpāñjali (of Vedă, seventeenth century) (Bikaner, Tanjore).

Saṅgītă Rāgă Kalpadrumă (of Kṛishṇānandă Vedăvyāsă) (Poona).

Saṅgītă Rāghavă (of Chinabommabhūpālă) Telugu script. (Tanjore).

Saṅgītă Raghunandană (of Viśhvanāthă Simhă) (Adyar, Benares).

Saṅgītă Rājă (of Kumbhakarṇă, 1433–1468) (Cent. Prov. and Poona).

Saṅgītă Rājă Ratnakoṣhă (Bikaner).

Saṅgītă Rāmă Kautukă (Bikaner).

Saṅgītă Rasă Kaumudī (Baroda, Calcutta).

Saṅgītă Ratnākară (of Varuṇakă) (Bikaner).

Saṅgītă Ratnākară (of Viṭṭhală) (Poona).

Saṅgītă Ratnākară Vyākhyā-setuḥ (of Gaṅgārāmă) (see: Hindi).

Saṅgītă Ratnă Mālā (of Mammată, 1050–1150) (O. C. Gangoly's bibliography).

Saṅgītă Ratnāvalī (Baroda, Calcutta).

Saṅgītă Sāgară (of Pratāpă Simhă, 1779–1804) (Jaipur?).

Saṅgītă Saṅgrahă (Calcutta).

Saṅgītă Saṅgrahă Chintāmaṇi (of Appală-Āchāryă, nineteenth century) (Adyar).

Saṅgītă Sără (of Harināyakă, c. 1500 A.D.) (O. C. Gangoly's bibliography).

Saṅgītă Sără (late eighteenth century) (Bikaner).

Saṅgītă Sărăkalikā (of Śhuddhă Svarṇakară Mośhă Devă) (Bikaner).

Saṅgītă Sārāmṛită (of Tulajārājă, eighteenth century) (Tanjore).

Saṅgītă Saraṇi (of poet Nārāyaṇă, eighteenth century) (Madras).

Saṅgītă Sără-Saṅgrahă (of Sourindră Mohan Śharmā, Rājā Tagore, 1875) (Madras).

Saṅgītă Sără-Saṅgrahă (Anonymous) (Conjeevaram).

Saṅgītă Sără Saṅgrahă (of Jagajjyotirmallă, seventeenth century) (Nepal).

Saṅgītă Sarasvatī Hṛidayālaṁkāră (of Nānyă Devă, twelfth century). Same work as Bharată bhāṣhyă.

Saṅgītă Sārāvalī (Benares).

Saṅgītă Săroddhāră (of Hari Bhaṭṭă, seventeenth century) (Bikaner).

Saṅgītă Săroddhāră (of Kikarājā, seventeenth century) (Poona).

Saṅgītă Săroddhāră (Bikaner). Same work as Rāmă Kautuhală.

Saṅgītă Śhārīră (Bikaner).

Saṅgītă Śhāstră (Tanjore).

Saṅgītă Śhāstră Saṅkṣhepă (of Govindă, eighteenth century) (Adyar).

Saṅgītă Siddhāntă (of Rāmānandă Tīrthă) (Aufrecht's cat.).
Saṅgītă Śhiromaṇi (Bikaner, Calcutta).
Saṅgītă Sudhā (of Bhīmă Narendră) (Oudh).
Saṅgītă Sudhākară (of Haripālă Devă, 1309–1312) (Adyar, Madras, Tanjore).
Saṅgītă Sūryodayă (of Lakṣhmī Nārāyaṇă, sixteenth century) (Madras).
Saṅgītă Sūtră (Bikaner).
Saṅgītă Upadeśhă (Bikaner).
Saṅgītă Upaniṣhad (of Sudhākalasă, 1323 A.D.) (Bikaner).
Saṅgītă Upaniṣhatsără (Sudhākalasă, 1349 A.D.) (Bikaner).
Saṅgītă Vartamānă (Bikaner).
Saṅgītă Vidyābhidhānă (Calcutta).
Saṅgītă Vinodă (of Bhāvă Bhaṭṭă, c. 1700) (Bikaner).
Saṅgītă Viṣhayă, Telugu script (Madras).
Saṅgītă Vṛittaratnākaraḥ (attributed to Puṇḍarīkă Viṭṭhală, c. 1590) (Tanjore).
Saṅkīrṇă Rāgă (Bikaner, Poona).
Saṅkīrṇă Rāgă lakṣhaṇă (Calcutta).
Saptă-svară lakṣhaṇam (Trivandrum).
Śhārṅgadhară Paddhati (of Śhārṅgadhară, c. 1300–1350) (Bikaner).
Śhṛiṅgără Hără (Bikaner).
Śhruti Bhāskară (of Bhīmă Devă) (Bikaner).
Someśhvară Mată (Calcutta).
Subodhini (of Gaṇeśhă Devă, seventeenth century) (Bikaner).
Sulādi (Tanjore).
Svarādhyāyă Bhāṣhā (Bikaner).
Svară Prastără (Mysore).
Svară Rāgă Sudhārasă (Madras).
Svarārṇavă (of Somanāryă) (Tanjore).
Svară Samuch'ayă (Oppert's cat.). Incomplete.
Svară tālādi lakṣhaṇam (Trivandrum).
Tālă adhyāyă, Telugu script (Madras).
Tālă Daśhă-prāṇă Dīpikā (Tanjore).
Tālă Daśhă-prāṇă lakṣhaṇam, Telugu script (Madras).
Tālă Dīpikā (of Gopendră Tippă Bhūpālă, fifteenth century) (Madras, Tanjore).
Tālă Lakṣhaṇam (Anonymous) (Madras).
Tālă Lakṣhaṇam (of Kohală) Telugu script, (India Office, Madras).
Tālă Lakṣhaṇam (of Nandikeśhvară) (Ānandāśhram, Tanjore).

Tālă Prakaraṇam (Madras).
Tālă Prastāră (Tanjore).
Tālă Vidhānă (Madras). Same work as Oḍḍiśhă mahāmantrodayă.
Tālă Viṣhayă, Telugu script (Madras).
Tānă Nighanṭu (Tanjore). Incomplete.
Varṇă Laghuvyākhyānă (of Rāmă) (Madras).
Viṭṭhalīyaḥ (of Viṭṭhală) (Tanjore). Incomplete.

III. PERSIAN AND URDU MANUSCRIPTS

Ukdé Guṣhā (Benares) Persian.
Nāgmat-e-Asaphi (of Muhammad Rezza, 1813) (Benares) Persian.
Rāgă Mālā (of Saiyid "Abd-al Wali" Uzlat) 1759 (Hindusthani).

IV. HINDI MANUSCRIPTS

Mānă Kautūhală (of Rājā Mānsing Tomār, 1486-1518) (Baroda).
Rāgă Mālā (attributed to Tan Sen, 1549).
Rāgă Vichāră (of Śhrīrāmă Mallă) (Bikaner).
Saṅgītă Darpaṇă, a Hindi version of Dāmodară's work, by Harivallabhă (Bikaner, British Museum, Mss dated 1673).
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1. अरुणद् यवनः साकेतम् । अरुणद् यवनो मध्यमिकाम् ।

2 पूर्वे किराता यस्यान्ते पश्चिमे यवनस्तथा ।

3 पुत्रानध्यापयामास प्रयोगे चापि तत्त्वतः ।
शाण्डिल्यं चैव वात्स्यं च कोहलं दत्तिलं तथा ॥

4 भरतानाञ्च वंशोऽयं भविष्यच्च प्रकीर्तितम् ।
कोहलादिभिरे(भर) तैर्वा वात्स्यशाण्डिल्यधूर्त्ति(दत्ति)लैः॥

5 सदाशिवः शिवा ब्रह्मा भरतः कश्यपो मुनिः ।
मतंगो याष्टिको दुर्गाशक्तिः शार्दूलकोहलौ ॥ 15
विशाखिलो दन्तिलश्च कम्बलोऽश्वतरस्तथा ।
वायुर्विश्वावसू रंभाऽर्जुनो नारदतुंबुरू ॥ 16
आंजनेयो मातृगुप्तो रावणो नंदिकेश्वरः ।
स्वातिर्गुणो बिंदुराजः क्षेत्रराजश्च राहलः ॥ 17
रुद्रटो नान्यभूपालो भोजभूवल्लभस्तथा ।
परमर्दी च सोमेशो जगदेकमहीपतिः ॥ 18
व्याख्यातारो भारतीये लोल्लटोद्भटशंकुकाः ।
भट्टाभिनवगुप्तश्च श्रीमत्कीर्तिधरोऽपरः ॥ 19
अन्ये च बहवः पूर्वे ये संगीतविशारदाः ।

6 संगीतशास्त्रे बहुधा विरोधाः सन्त्येव लक्ष्येषु च लक्षणेषु ।

7 अनाहतो हतश्चैव स नादो द्विविधो मतः ।
यत्रोभयोस्तयोर्मध्येऽनाहतोऽपि निरूप्यते ॥ 4
आकाशसंभवो नादो यः सोऽनाहतसंज्ञितः ।
तस्मिन्ननाहते नादे विरामं प्राप्य देवताः ॥ 5
योगिनोऽपि महात्मानस्तदानाहतसंज्ञके ।
मनो निक्षिप्य संयान्ति मुक्तिं प्रयतमानसाः ॥ 6

8 आहतो रञ्जकः प्रोक्तोऽनाहतो मुक्तिदायकः ।

9. स च रक्तिविहीनत्वान्न मनोरञ्जको नृणाम् ।

10 नकारं प्राणनामानं[1] दकारमनलं विदुः ।
जातः प्राणाग्निसंयोगात्तेन नादोऽभिधीयते ॥
(1. प्राणमानन्दो)

11 सोऽप्याहतः पञ्चविधो नादस्तु परिकीर्तितः ।
नखवायुजचर्माणि[1] लोहशारीरजास्तथा ॥
(1. नखाश्च वायुचर्मभ्यां)

12. रंजकः स्वरसंदर्भो गीतमित्यभिधीयते ।
गांधर्वं गानमित्यस्य भेदद्वयमुदीरितम् ॥

13. अनादिसंप्रदायं यद्गांधर्वैः संप्रयुज्यते ।
नियतं श्रेयसो हेतुस्तद्गांधर्वं जगुर्बुधा[1]: ॥
(1. प्रचक्षते)

14. मार्ग अन्वेषणे

15. मार्गः स उच्यते ।
यो मार्गितो विरिञ्च्या[1]द्यैः प्रयुक्तो भरतादिभिः ॥
देवस्य पुरतः शम्भोर्नियताभ्युदयप्रदः ।
(1 श्रा)

16. यत्तु वाग्गेयकारेण रचितं लक्षणान्वितम् ।
देशी रागादिषु प्रोक्तं तद्गानं जनरञ्जनम् ॥

17. देशे देशे जनानां यद्रुच्या हृदयरंजक[1]म् ।
गीतं च वादनं नृत्य[2] तद्देशीत्यभिधीयते ॥
(1 न) (2. त्तं)

18 देशे देशे प्रवृत्तोऽसौ ध्वनिर्देशीति संज्ञितः ।

19 आक्रान्तं ध्वनिना सर्वं जगत् स्थावरजङ्गमम् ।
ध्वनिस्तु द्विविधः प्रोक्तो व्यक्ताव्यक्तविभागतः ॥
वर्णोपलम्भनाद् व्यक्तो देशीमुखमुपागतः ॥

20. षड्जः सर्वेषां स्वराणामाद्यः तस्मात्प्रधानं मुख्यः ।

21. दत्तिलो हि स्वेच्छया यस्यां कस्यामपि श्रुतौ षड्जं
स्थापयेत्तदपेक्षया च श्रुतिनियमेनान्यान्स्वरान्स्थापयेदित्युक्तवान् ॥

22. रागजनको ध्वनिः स्वर इति ।

23 राजृदीप्ताविति[1] धातोः स्वशब्दपूर्वकस्य च ।
स्वयं यो[2] राजते यस्मात्तस्मादेष स्वरः[3] स्मृतः ॥
(1. दीप्तावस्य. Siṁhabhūpālā, Saṅg Ratn 3 24)
[2 हि] [3 तस्मात्स्वर इति id.]

24. षड्जादयः स्वराः सप्त व्यज्यन्ते श्रुतिभिः सदा ।
अन्धकारस्थिता यद्वत् प्रदीपेन घटादयः ॥

25 [श्रवणात् श्रुतयो मताः]
श्रुत्यनन्तरभावी यः शब्दो[1]ऽनुरणनात्मकः ।
स्वतो रञ्जयति श्रोतृचित्तं स स्वर उच्यते ॥
[1. स्निग्धोऽ]

26 श्रुत्यनन्तरभावित्वं यस्यानुरणनात्मकः ।
स्निग्धश्च रंजकश्चासौ स्वर इत्यभिधीयते ॥

27 श्रुतिभ्यः स्युः[1] स्वराः षड्जर्षभगांधारमध्यमाः ।
पञ्चमो धैवतश्चापि[2] निषाद इति सप्त ते[3] ॥ 167
(1. श्रुतिभ्यश्च) (2. धैवतश्चाथ) (3 च:)

28. तेषां संज्ञाः स रि ग म प ध नीत्यपरा मताः । 168

29. आत्मा च स-स्वरः प्रोक्तः शिरो रि-स्वर उच्यते ।
हस्तौ गांधारसंप्रोक्तौ वक्षः स्यान्मध्यमस्वरः ॥

कण्ठस्तु पञ्चमः प्रोक्तः कटिर्धैवतसंज्ञकः ।
पादौ निषाद एव स्यात् सप्ताङ्गा मूर्छना भवेत् ॥

30. ते स्वराः सप्तैवेति नियमे सप्तधात्वाश्रितत्वं
सप्तचक्राश्रितत्वं वा निमित्तं मतङ्गोक्तमनुसन्धेयम् ।

31. षड्जं वदति मयूरो ऋषभं चातको वदेत् ।
अजा वदन्ति (? ति) गांधारं क्रौञ्चो वदति मध्यमम् ॥
पुष्पसाधारणे काले कोकिलः पञ्चमं वदेत् ।
प्रावृट्काले तु सम्प्राप्ते धैवतं दर्दुरो वदेत् ॥
सर्वदा च तथा देवि ! निषादं वदते गजः ।

32. मनोभिरामाः शृण्वन्तो रथनेमिस्वनोन्मुखैः ।
षड्जसंवादिनीः केका द्विधा भिन्नाः शिखण्डिभिः ॥

33 श्रुतिद्वयं चेत् षड्जस्य निषादस्संश्रयेद्यथा । (तदा)
स काकलीमध्यमस्य गान्धारस्त्वन्तरः स्वरः ॥

34 निषादः काकलीसंज्ञो द्विश्रुत्युत्कर्षणाद्भवेत् ।
गान्धारस्तद्वदेव स्यादन्तरस्वरसंज्ञितः ॥
अनंशत्वात्तु भेदेन स्वरत्वं नोच्यते तयोः ।
अतो निषादगान्धारावेतावार्यै[1]रुदाहृतौ ॥
(1. मुं)

35 श्रूयते इति श्रुतिः ।

36. श्रु श्रवणे चास्य धातोः क्तिन्प्रत्ययसमुद्भवः ।
श्रुतिशब्दः प्रसाध्योऽयं शब्दज्ञैर्भावसाधनः ॥

37 द्वाविंशतिं केचिदुदाहरन्ति श्रुतीः श्रुतिज्ञानविचारदक्षाः ।
षट्षष्टिभिन्नाः खलु केचिदासामानन्त्यमेव प्रतिपादयन्ति ॥

38 ते तु द्वाविंशतिर्नादा न कण्ठेन परिस्फुटाः ।
शक्या दर्शयितुं तस्माद्वीणायां तन्निदर्शनम् ॥

39 पञ्चमस्य श्रुत्युत्कर्षापकर्षाभ्यां मार्दवादायतत्वाद्वा
यदन्तरं त[1]त्प्रमाणं[2]श्रुतिरिति ।
(1 तावत्) (2. प्रमाण)

40 उच्चैस्तरो ध्वनी रूक्षो विज्ञेयो वातजो बुधैः ।
गम्भीरो घन[1]लीनस्तु ज्ञेयोऽसौ पित्तजो ध्वनिः ॥
स्निग्धश्च सुकुमारश्च मधुरः कफजो ध्वनिः ।
त्रयाणां गुणसंयुक्तो विज्ञेयः सन्निपातजः ॥
(1. घन (नी ? शी) लस्य ज्ञातव्यः)

41 दीप्ताऽऽयता च करुणा मृदुर्मध्येति जातयः ।
श्रुतीनां पञ्च तासां च स्वरेष्वेवं व्यवस्थितिः ॥

42 तीव्रा कुमुद्वतीमन्दाच्छन्दोवत्यस्तु षड्जगाः ।
दयावती रंजनी च रक्तिका चर्षभे स्थिताः ॥
रौद्री क्रोधा च गान्धारे वज्रिकाऽथ प्रसारिणी ।
प्रीतिश्च मार्जनीत्येताः श्रुतयो मध्यमाश्रिताः ॥

क्षिती रक्ता सन्दीपन्यालापिनी चैव पञ्चमे ।
मदन्ती रोहिणी रम्येत्येता धैवतसंश्रयाः ॥
उग्रा च क्षोभिणीति द्वे निषादे वसतः श्रुती ।

43. सा च मूर्छना द्विविधा सप्तस्वरमूर्छना द्वादशस्वरमूर्छनेति ।

44 स रि ग म प ध नीति षड्जग्रामस्य मूर्छना ।
म प ध नि स रि ग मध्यमग्राममूर्छना ॥
प ध नि स रि ग मेति गान्धारग्राममूर्छना ।

45 अथ ग्रामास्त्रयः प्रोक्ताः स्वरसन्दोहरूपिणः ।
षड्जमध्यमगान्धारसंज्ञाभिस्ते समन्विताः ॥ 97
मूर्छनाधारभूतास्ते षड्जग्रामस्त्रिषूत्तमः ।
रागा ग्रामद्वयाल्लभ्या षड्जग्रामोद्भवा इति ॥ 98.

46 गान्धारमध्यमग्रामावप्रयोजनकौ मतौ ।
गान्धारमध्यमग्रामौ यदि भ्रान्त्या प्रकल्पितौ ॥
तर्हि तल्लक्षणं प्रोक्तमर्थागीकारमात्रतः ।

47 देशीरागाश्च सकलाः षड्जग्रामसमुद्भवाः ।

48 मध्यस्थानस्थषड्जेन मूर्छनाऽऽरभ्यते क्रमात् ।

49 ननु कथं षड्जमध्यमस्वराभ्यां ग्रामव्यपदेश उच्यते-
असाधारणत्वेन ताभ्यां ग्रामव्यपदेशः ।
असाधारणत्वं च देवकुलोत्पन्नत्वेन ।

50 स्वरोऽग्रिम श्रुतिं याति तीव्रसंज्ञां प्रयात्यसौ ।
स्वरोऽग्रिम श्रुती याति तदा तीव्रतरो भवेत ॥
स्वरोऽग्रिमश्रुतीर्याति तर्हि तीव्रतमो भवेत् ।
चतस्रः श्रुतयो यस्मिन्नधिकाः स्युर्यदा स्वरः ॥
अतितीव्रतमाख्यां च प्राप्नोतीति जगुर्बुधाः ।
स्वरः पश्चान्निवृत्तश्चेत्कोमलादिभिरीरितः ॥
एक श्रुतिपरित्यागात् स्वरः कोमलसंज्ञकः ।
श्रुतिद्वयपरित्यागात्पूर्वशब्देन भण्यते ॥

51. व्यवहारे त्वसौ त्रेधा हृदि मन्द्रोऽभिधीयते ।
कण्ठे मध्ये मूर्ध्नि तारो द्विगुणश्चोत्तरोत्तरः ॥

52. हृदि मन्द्रो गले मध्यो मूर्ध्नि तार इति क्रमात् ॥

53. मन्द्रो हृदि स्थितः कण्ठे मध्यतारश्च मूर्द्धनि ।
द्विगुणः किं समासेन पूर्वस्मादुत्तरोत्तरः ॥

54. तथा लया हास्यशृङ्गारयोर्मध्यमाः । बीभत्सभयानकयो-
र्विलम्बितः । वीररौद्राद्भुतेषु च द्रुतः ।

55. तकारे[1]शङ्करः प्रोक्तो लकारे[2]पार्वती स्मृता ।
शिवशक्तिसमायोगात्ताल इत्यभिधीयते ॥
शिवशक्त्यात्मकं पुण्यं यशस्यं भुक्तिमुक्तिदम् ।
ततः प्राणात्मकं तालं योगिनामभिलिप्सितम् ॥
(1. रश्शङ्करः, Śh tat Ratn) (2. रः id.)

55 a समोऽतीतोऽनागतश्च ग्रहस्ताले त्रिधा मतः ॥
गीतादि समकालस्तु समपाणिः समग्रहः ।
सोऽवपाणिरतीतः स्याद्यो गीतादौ प्रवर्तते ॥
अनागतः प्राक्प्रवृत्तग्रहः सोपरिपाणिकः ।

56. गानक्रियोच्यते वर्णः स चतुर्धा निरूपितः ।
स्थाय्यारोह्यवरोही च संचारीत्यथ लक्षणम् ॥

57. एकस्वरा पदे गीतिः स्थायिवर्णोऽभिधीयते ।

58. स्थित्वा स्थित्वा प्रयोगः स्यादेकैकस्य[1] स्वरस्य यः ।
स्थायी वर्णः स[2] विज्ञेयः परावन्वर्थ[3] नामकौ ॥
एतत्सम्मिश्रणाद् वर्णः सञ्चारी परिकीर्तितः ।
(1. प्रयोगस्य चैककस्य, स्यादेकस्यैव, Śh. tat. Ratn., Saṅg. Ratn) (2. वर्णस्य id.) (3. च)

59 यत्र भेदा बहुविधास्तत्र स्थायिगतान् ब्रुवे ।
एवमाद्यन्तयोरेकस्वरस्थे स्थायिवर्णगाः ॥

60 परस्परं स्वराणां तननात् तानाः ।

61 तानो द्विधा शुद्धतानः कूटतान इति क्रमात् ।
एकैकरागमात्राभिव्यक्तिसंपादकस्तु यः ॥
स शुद्धतान इत्युक्तः कूटतानः स उच्यते ।
यस्तु रागद्वयस्फूर्तिः साधारणतया स्थितः ॥
ग्रन्थकारास्तु प्राचीनाः कस्माच्चिदपि कारणात् ।
प्रयोजनं लक्ष्यगामि न वदन्ति परिस्फुटम् ॥
चतुरशीतीति संख्या सुव्यक्ता सर्वसम्मता ।
प्रस्तारो मूर्छनायाः स्यात्कदाचिदेतदुत्थितः ॥

62 विस्तार्यते येन रागः स तानः कथ्यते बुधैः ।
शुद्धकूटविभेदेन द्विविधास्ते सुलक्षिताः ॥
शुद्धतानरहस्यं तल्लक्ष्ये नेह परिस्फुटम् ।
इति तेषां समाख्यान मन्येऽत्र निष्प्रयोजनम् ॥

63 पूर्णाः पञ्चसहस्राणि चत्वारिंशद्युतानि तु ।
एकैकस्यां मूर्छनायां कूटतानाः सह क्रमैः ॥

64 षट्पञ्चाशन्मूर्छनास्थाः पूर्णाः कूटास्तु योजिताः ।
लक्षद्वयं सहस्राणि द्व्यशीतिर्द्वे शते तथा ॥
चत्वारिंशत्तु संख्याता ·· ·· ····

65 क्रमात्स्वराणां सप्तानामारोहश्चावरोहणम् ।
मूर्छनेत्युच्यते ग्रामद्वये ताः सप्त सप्त च ॥

66 द्वादशस्वरसपन्ना ज्ञातव्या मूर्छना बुधैः ।
जातिभाषादिसिद्ध्यर्थं तारमन्द्रादिसिद्धये ॥

67 तत्र सप्तस्वरमूर्छना चतुर्विधा पूर्णा षाडवा औडुविता-साधारणा चेति । तत्र सप्तभिः स्वरैर्या गीयते सा पूर्णा । षड्भिः स्वरैर्या गीयते सा षाडवा, पञ्चभिः स्वरैर्या गीयते सा औडुविता, काकल्यैरन्तरं स्वरैर्या गीयते सा साधारणा ।

68 विशिष्टं वर्णसन्दर्भमलकार प्रचक्षते ।

69 मन्द्रशब्देन प्रसन्नध्वनिरुच्यते,

70 प्रसन्नादिः प्रसन्नान्तः प्रसन्नाद्यन्तसंज्ञिकाः ।
ततः प्रसन्नमध्यः स्यात् परश्च क्रमरेचितः ॥
प्रस्तरेऽथ[1] प्रसादः स्यात्[2] षड्जे स्थायिनि स्थिताः ।
(1. प्रस्तारश्च) (2 श्च)

71 मन्द्रादारभ्य मे सारोहणं तारगति यावदसौ प्रसन्नादि ।
सा री गा मा पा धा नी सा इति प्रसन्नादि ।

72 तारादारभ्यावरोहक्रमेण प्रसन्नान्तः । यथा-सा नी धा पा मा गा री सा इति प्रसन्नान्तः ।

73 यत्राद्यन्तयोः प्रसन्नः मध्ये च तारः स प्रसन्नाद्यन्तः । यथा-सा री गा मा पा धा नी सा नी धा पा मा गा री सा इति प्रसन्नाद्यन्तः ।

74 यत्र मन्द्रो मध्ये आद्यन्तयोश्च तारः स प्रसन्नमध्यः । यथा-सा नी धा पा मा गा री सा री गा मा पा धा नी सा इति प्रसन्नमध्यः ।

75. द्वादशारोहवर्णास्ता अलंकाराः प्रकीर्तिताः ।
अवरोहक्रमादेते द्वादशाप्यवरोहणे ॥

76 अनेन सप्तालंकारा गीतज्ञैरुपदर्शिताः ।
तारमन्द्रप्रसन्नश्च मन्द्रतारप्रसन्नकः ॥
आवर्तकः संप्रदानो विधुताप्युपलोलकः ।
उल्लासितश्चेति······ ···

77 स्वश्रुतिस्थानसंभूतां छायां श्रुत्यन्तराश्रयाम् ।
स्वरो यद् गमयेद् गीते गमकोऽसौ निरूपितः ॥

78 गमकं (? का ए) कविंशश्च चरणान्यपि कथ्यते ।

79 स्वरस्य कम्पो गमकः श्रोतृचित्तसुखावहः ।
तस्य भेदास्तु तिरिपः स्फुरितः कम्पितस्तथा ॥
लीन आन्दोलितवलित्रिभिन्नकुरुलाहताः ।
उल्लासितः प्लावितश्च गुम्फितो मुद्रितस्तथा ॥
नामितो मिश्रिता पञ्चदशैते परिकीर्तिताः ।

80 स्फुरितः कम्पितो लीनस्तिरिपश्चाहतस्तथा ।
आन्दोलितस्त्रिभिन्नश्च गमकाः सप्त कीर्तिताः ॥

81 लघिष्ठडमरुध्वान-कम्पानुकृतिसुन्दरः ।
द्रुततुर्यांशवेगेन तिरिपः परिकीर्तितः ॥

82 श्रुतयो यत्र वेगेन भ्रमन्त्यावर्तरूपवन ।
तमाहुस्तिरिपं नाम्ना गमकं गीतवेदिनः ॥

83 वेगे द्रुततृतीयांशसंमिते स्फुरितो मतः ।

84 आरोहिक्रमतो यत्र स्फुरन्ति श्रुतयः क्रमात् ।
अनुद्रुताय वेगेन तमाहुः स्फुरितं बुधाः ॥

85 द्रुतार्धमानवेगेन कम्पितं गमकं विदुः ।

86 स्वरकम्पो भवेद् यत्र द्रुतद्विगुणवेगतः ।
कम्पितो नाम गमकः स विज्ञेयो मनीषिभिः ॥"

87. लीनद्रुतस्तु वेगेन

88 द्रुतमानेन मसृणः स्वरो यत्र विलीयते ।
स्वरान्तरक्रमेणैव स भवेल्लीनसंज्ञकः ॥

89 आन्दोलितो लघुवेगतः

90 कश्चिल्लघुवेगतो येन लयेन गीयते द्रुतेन मध्यमेन विलम्बितेन वा तत्प्रमाणके स्वरस्य कम्प आन्दोलिताख्यो गमकः ।

91 आन्दोलनं भवेद् यत्र स्वराणां लघुमानतः ।
आन्दोलिताख्यं गमकं गीतज्ञास्तं प्रचक्षते ॥

92 ··· प्लावितस्तु प्लुतमानेन कम्पनम्

93. वलिर्विविधवक्रत्वयुक्तवेशाद्भवेत् ।

94. कुरुलो वलिरेव स्याद् ग्रन्थिलः कण्ठकोमलः ।

95. मुखमुद्रणसंभूतो मुद्रितो गमको भवेत् ।

96. हृदयंगमहुंकारगम्भीरो गुम्फितो भवेत् ।

97. त्रिभिन्नस्तु त्रिषु स्थानेष्वविश्रान्तघनस्वरः ।

98 स्थानकत्रयसंस्पर्शी तत्तत्स्थानगुणैर्युतः ।
अविश्रान्तस्वरोपेतस्त्रिभिन्नगमकः स्मृतः ॥

99. स्वरमग्रिममाहत्य निवृत्तस्त्वाहतो मतः ।

100 अप्रियं पुरतः स्थितं स्वरमाहत्य शीघ्रं सकृत्स्पृष्ट्वा निवृत्त आहत उच्यते ।

101. चिरमेकस्मिन् स्वरे षड्जादिरूपे स्थित्वा तदीयतारमग्निवत् (स्पृ) ष्ट्वा कलामेकां च स्थित्वा यत्र पुनरपि समा सा मन्द्रया गम्यते स बिन्दुः ।

102. उल्लासितः स तु प्रोक्तो यः स्वरानुत्तरोत्तरान् ।
क्रमाद्गच्छेत्—

103 यस्तूत्तरोत्तरं क्रमात्स्वरानारोहति स उल्लासित इत्युच्यते ।

104 स्वराणां नमनादुक्तो नामितो ध्वनिवेदिभिः ।

105 स्वराणां नमनं मन्द्रस्थान उच्चारणमवरोहणं तदुक्ते नामित इत्युच्यते ।

106 एककलान्तरं स्पृष्ट्वा बिन्दोरेव विपर्ययोच्चारणामहत्तो विनिवृत्तत्वाद्ध निवृत्ताख्यः ।

107. एतेषां मिश्रणान्मिश्रस्तस्य स्युर्भूरयो भिदाः ॥

108 तिरिपान्दोलितो लीनकम्पितः कम्पिताहतः ।
तिरिपस्फुरितो लीनस्फुरितः स्फुरिताहतः ॥
लीनकम्पितलीनश्च त्रिभिन्नकुरुलाहतः ।
प्लावितोल्लासितवलिर्वलिहुम्फितमुद्रितः ॥
नामितान्दोलितवलिर्वलिनामित-कम्पितः ।
आन्दोलित-प्लावितकसमुल्लासितनामितः ॥
तिरिपान्दोलितवलिस्त्रिभिन्नकुरुलोऽपरः ।
त्रिभिन्नलीनस्फुरितप्लावितान्दोलितः परः ॥

109 गीतादौ स्थापितो यस्तु स ग्रहस्वर उच्यते ।
न्यासस्वरस्तु विज्ञेयो यस्तु गीतसमाप्तकः ॥
बहुलत्वं प्रयोगेषु स चांशस्वर उच्यते ।

110 ग्रहस्तु सर्वजातीनामंशवत् परि[1]कीर्त्तित. ।
यत्प्रवृत्तो[2] भवेद्ध गेयः[3] सोंऽशो ग्रहविकल्पकः[4] ॥
(1. मंश एव हि) (2 त्तं) (3 गानं) (3. स्थितः)

111 यस्मिन्नंशे क्रियमाणे रागाभिव्यक्तिर्भवति सोंऽशः ।

112 अंशस्वरस्त्वसावेव जीवस्वर इति स्मृतः ।

113 षड्जः सर्वत्र रागे च ग्रहः

114 प्रयोगे बहुलः स स्याद्वाद्यंशो योग्यतावशात् ।

115 यश्च बहुप्रयोगतरः सोऽप्यंशः

116 रागश्च यस्मिन्वसति यस्माच्चैव प्रवर्त्तते ।
नेता च तारमन्द्राणां योऽत्यर्थमुपलभ्यते ॥
ग्रहापन्यासविन्याससन्न्यासन्यासयोगतः ।
अनुवृत्तश्च यश्चेह सोंऽशः स्याद्दशलक्षणः ॥

117. रञ्जधातोर्घञ्प्रत्ययेन निष्पन्नो रागशब्दः ।

118. रञ्जकः स्वरसंदर्भः स रागः कथितो बुधैः ।

119. रञ्जन्ति तल्लीना भवन्ति

120. योऽयं ध्वनिविशेषस्तु स्वरवर्णविभूषितः ।
रञ्जको जनचित्तानां स रागः कथितो बुधैः ॥

121. षड्जर्षभौ तथा ज्ञेयौ वीररौद्राद्भुतेषु च ।

122. शृङ्गारहास्यकरुणरौद्रवीरभयानकाः ।
बीभत्साद्भुतशान्ताख्या नव नाट्ये रसाः स्मृताः ॥
... .

तत्र हास्यशृङ्गारयोर्मध्यमपञ्चमौ । वीररौद्राद्भुतेषु षड्जर्षभौ । करुणे निषादगान्धारौ । बीभत्सभयानकयोर्धैवतम् । शान्ते मध्यमम् ।

123 कर्षति इति कृष्णः

124 पद्मपत्रप्रभः षड्ज ऋषभः शुकवर्णकः[1] ।
कनकाभस्तु गान्धारो मध्यमः कुन्दसन्निभः[2] ॥
पञ्चमस्तु भवेत् कृष्णः पीतवर्णस्तु धैवतः[3] ।
निषादः सर्ववर्णोऽयं विज्ञेयः[4] स्वरवर्णकः[5] ॥
(1 शुकपिञ्जरः) (2 कुन्दसप्रभः) (3 पीतकं धैवतं विदुः)
(4 सर्ववर्णः स्यादित्येना) (5 ताः)

125. आदावुद्गृह्यते येन स तानोद्ग्राहकसंज्ञकः ।
(१) आद्यन्तयोश्चानियमस्ताने यत्र प्रजायते ॥
स्थायी तानः स विज्ञेयो लक्ष्यलक्षणकोविदैः ।
सञ्चारी तु स विज्ञेयः स्थाय्यारोहविमिश्रितः ॥
यत्र रागस्य विश्रान्तिः समाप्तिद्योतको हि सः ।

126 गीर्वाणमध्यदेशीयभाषामाहित्यराजितम् ।
द्विचतुर्वाक्यसम्पन्नं नरनारीकथाश्रयम् ॥
शृङ्गाररसभावाढ्य रागालापपदात्मकम् ।
पादान्तानुप्रासयुक्त पादान्तयमक च वा ॥
प्रतिपादं यत्र बद्धमेवं पादचतुष्टयम् ।
उद्ग्राहध्रुवकाभोगोत्तम ध्रुवपदं स्मृतम् ॥

127. औडवः पञ्चभिः प्रोक्तः स्वरैः षड्भिस्तु षाडवः ।
संपूर्णः सप्तभिः प्रोक्तो रागजातिस्त्रिधा मता ॥
or (सम्पूर्णः सप्तभिर्ज्ञेय एव रागस्त्रिधा मतः) ।

128 द्वौ त्रयो वापि चत्वारः स्युस्ताना रञ्जकस्वराः ।
पञ्चाद्यैरथ रागः

129 शुद्धो रञ्जनकारी स्वेन च्छायालगः पराश्रयतः ।
संकीर्णस्तूभयथा मतमुदितमुमापतेरेवम् ॥

130 औडवशब्दस्य व्युत्पत्तिर्यथा-उडवः नक्षत्राणि
यान्ति गच्छन्ति यस्मिन् इति उडवं व्योम ।
तच्च भूतेषु पञ्चमम् । तेन पञ्च संख्याः प्रतीयन्ते ।
औडवी संख्या पञ्च स्वरसंख्या इत्यर्थो विद्यते यस्य

131 संग्रामरूपलावण्यविरहा गुणकीर्तनम् ।
षाडवेन प्रगातव्यं लक्षणं चरितं तथा ॥
व्याधिनाशे शत्रुनाशे भयशोकविनाशने ।
दुःस्थिते चैव सन्तापे मङ्गलाचारसंयुते ॥
औडवेन प्रगातव्यं क्षामे च ग्रहमोक्षणे ।

132. श्रुतिग्रहस्वरादिसमूहाज्जायन्ते जातयः
अतो जातय इत्युच्यन्ते ।

133. भैरवो मालकोशश्च[1] हिन्दोलो दीपकस्तथा ।
श्रीरागो मेघरागश्च षडेते[2] पुरुषाः स्मृताः ॥
(1. भैरवः कौशिकश्चैव, Śh. tat. Ratn.) (2. षडेते, id)

SANSKRIT REFERENCES

134 रागोत्पादनशक्तेर्वदनं तद्योगतो वादी ॥

135 वादी स यः प्रयोगे बहुलो राजा ।

136 यद्वा वादिस्वरेण रागस्य रागत्वं जनितं
तन्निर्वाहकत्वं नाम संवादित्वम् ।

137 द्वादश वाष्टौ श्रुतयोऽमास्यौ संवादिनौ तौ स्तः ।

138 श्रुतयोऽष्टौ द्वादश वा भवन्ति मध्ये ययोः स्वरयोः ।
संवादिनौ तु कथितौ परस्परं तौ निषादगान्धारौ
रिधयोः ...

139. न वादी न च संवादी न विवाद्यपि यः स्वरः ।
सोऽनुवादी विज्ञेयः सूक्ष्मदृष्ट्या विचक्षणैः ॥

140 रक्तिविच्छेदहेतुत्वं यस्मिन् रागे तु यस्य तु ।
तद्रागस्य स्वरैस्तस्य विवादित्वं भवेद् ध्रुवम् ॥
.... विवादी शत्रुवद् भवेत् ।

141 विवादी तु सदा त्याज्यः क्वचित्तानक्रियात्मकः ॥

142 मेलः स्वरसमूहः स्याद्रागव्यंजनशक्तिमान् ।

143 मेला मिलन्ति वर्गीभवन्ति
रागा येष्विति तदाश्रयभूताः स्वरसंस्थानविशेषाः
घा (था) टेति भाषायाम् ॥

144 कल्याणीमेलकस्त्वाद्यो बिलावल्या द्वितीयकः ।
खंमाजाख्यस्तृतीयः स्याद् भैरवस्य चतुर्थकः ॥
पंचमो भैरवीनामा षष्ठस्त्वासावरीरितः ।
सप्तमस्तोडिकाह्वोऽपि पूर्व्यभिधोऽष्टमः स्मृतः ॥
नवमो मारवाभिख्यो दशमः काफिसंज्ञितः ।
इत्येते दशमेलास्ते रागोत्पादनहेतवः ॥

145 सोले सहस्र एकशत आठ गोपी एतने ही श्रीकृष्ण रूप धरे
एक एक गोपी एक एक श्रीकृष्ण प्रति एक एक राग
एक एक ताल सोले सहस्र एकशत आठ रागरागिणी
प्रकट किये, ताते एह रागरागिणी भूलोकमें प्रसिद्ध हुये ॥